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DIESEL RAILWAY TRACTION

The May issue of this RAILWAY GAZETTE publication, illustrating and describing developments in Diesel Railway Traction, is now ready, price 2s.

British Transport Directory of Officials

A list of members of the Ministry of Transport, the British Transport Commission, the Railway Executive, the London Transport Executive, the Road Transport Executive, the Docks & Inland Waterways Executive, and the Hotels Executive, together with their principal officers so far as they have been announced

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THE RAILWAY GAZETTE

33, TOTHILL STREET, WESTMINSTER, S.W.1

£55,800,000 Loss on British Railways in 1947

ALTHOUGH the White Paper giving the receipts and expenditure of the controlled railway undertakings during 1947 has not yet been issued, it is possible to arrive at the result of railway operations last year from the Report* of the Comptroller and Auditor General on the Civil Appropriation Accounts. This states that the most recent returns available "indicate that the net loss to the Exchequer on the railway companies in 1947 was approximately £55,800,000." This included £16,000,000 in respect of an adjustment covering the whole period of control, but does not include a net loss to the Exchequer of a further £3,900,000 in respect of the London Passenger Transport Board. As the fixed annual sums payable to the controlled undertakings totalled £43,400,000, it would seem that the actual deficit on operations was of the order of £26,300,000, or, eliminating the adjustments over the whole control period, of some £10,300,000. For 1946 the net revenue of the pool was £32,182,000 and this involved the Exchequer in a net loss of £11,300,000. These figures give some indication of the magnitude of the task which faces the British Transport Commission in carrying out the policy of making transport pay. The Commission will have the assistance of revenues from road transport and canal undertakings in its task.

* * * *

Nationalisation in Haste

When the Transport Bill was going through Parliament, and again when the organisation of the British Transport Commission and its Executives were first being set up, we expressed the view that two years might be well spent in deciding what form of organisation was best suited to transport under State control. The organisation now in existence had to be brought into being within a few months between the passing of the Transport Act in August last year and the vesting date of January 1, 1948. Now, Mr. Shinwell, the Chairman of the Labour Party, has admitted that there was far too little detailed preparation in the formulation of schemes of nationalisation. Consequently, the Government had found itself with legislation that had had to be completed without the necessary blueprints on which it could have proceeded more expeditiously in the right direction. Things would never work out unless properly planned beforehand. Mr. Shinwell was speaking with particular reference to the coal industry, but his remarks were equally applicable to transport, civil aviation, gas and electricity, and the Government's other experiments in the field of State ownership.

* * * *

British Locomotives for Argentina

Negotiations are in an advanced stage for the placing of an important contract by Argentina with the British locomotive manufacturing industry for the building of 90 locomotives. This motive power is required for use on the formerly British-owned railways. Substantial contracts have also been placed by Argentina with American builders, who have been able to promise earlier deliveries than British manufacturers for some orders. The present British contract is conditional on deliveries being made in 1949. The British manufacturers were particularly anxious to maintain their long association with the Argentine market, and for this reason have adjusted their already crowded production programme to accommodate 90 of the locomotives on offer. It is to be hoped, therefore, that requisite raw material deliveries in right sequence will be made available to the industry, for on that much will depend.

* * * *

Institute of Transport Portland Place Headquarters

Another professional institution joined those already established in Portland Place when the new headquarters of the Institute of Transport were opened there on April 30 by Mr. T. W. Royle, President of the Institute. We report the ceremony and reproduce some views of the building on other pages this week. Mr. Howard Lobb, the architect, said at the opening ceremony that the building was of a dignity appropriate to its new function. During the war it had been

damaged by incendiary bombs in 1940, and when repairs were carried out in 1942 dry rot had set in, which complicated the work of restoration. How successful this has been is seen in the illustrations reproduced elsewhere. A cream-painted entrance hall communicates with the common room, library reference room, and library; and from it a white marble staircase leads to the council and committee rooms on the first floor. These are panelled in Louis XV style, while French Gothic, 18th Century, and Italian Renaissance fireplaces are seen in the downstairs rooms, together with the original beamed oak ceiling in the library. The Institute's offices are on the third floor, and the two top floors have been converted into flats.

* * * *

Road and Rail Transport Charges

An editorial article dealing with transport charges appears on page 535 of this issue. The complete nationalisation of the British Railways and the partial nationalisation of road motor services leave the problem of rail and road rates unsolved. The report on the subject submitted by the Transport Advisory Council in April, 1939, was shelved on the outbreak of war. When the Transport Act, 1947, was passed, the Council ceased to exist, but in any event its recommendations would not have been adequate to meet the present-day situation. To the British Transport Commission will fall the task of framing fresh proposals for establishing permanent rail and road haulage rates structures. It is not going to be easy to strike a balance between the two principal types of goods transport which will enable the railways to remain in full efficiency without a subsidy from the Exchequer, while permitting road conveyance to develop to the extent of its inherent advantages and preserving to the trader the right to choose his own way of forwarding his goods. Nothing, however, will be gained by delay and we hope that the Commission will make an early announcement about its method of procedure. It has set up an elaborate Public Relations & Publicity Department. Here is a unique opportunity for using that organisation.

* * * *

British Industries Fair

There have been signs, during the past twelve months, that the export market is no longer entirely in favour of the seller, and for this reason special interest attaches to the British Industries Fair which opened in London and Birmingham on Monday last. This, the second B.I.F. to be held since the war, has opened at a critical time in the export drive, and it has been encouraging to note that on this occasion British industry is giving still further proof of its inventive genius directed to the development of new markets, and its determination to cater for the more exacting demands of the overseas buyer. Last year, though there was ample evidence of the confidence of private enterprise to overcome the difficulties arising from controls and transition from war to peace, there was disappointment that promises for delivery were so far ahead. This year, however, speedier completion of orders by engineering firms may be expected, though order books are still full. Taking a general view, evidence is given once more that British industry can produce goods the equal of those of any other country to serve world needs, and at the same time work to secure a satisfactory standard of living for the British people.

* * * *

Western Region Timetable Map

The fact that the map was omitted from the copy of the Western Region timetable on which we commented last week led to the incorrect assumption that publication of this useful feature had been suspended. In fact, however, a new map has been produced, and is incorporated in the timetables on sale to the public. It measures 24 in. by 17½ in. and is printed on both sides of the paper. One side shows the Western Region system as a whole, including branch lines over which only merchandise traffic is worked. Symbols are placed against the names of certain towns to show the existence of docks and waterside premises, Western Region hotels, and cathedrals or other important ancient ecclesiastical buildings. Railway routes on which services are run in conjunction with those

of the Western Region, are indicated by bold lines, and include the connections from Banbury with the Eastern Region to Sheffield and beyond; and those at Reading, Winchester, and Salisbury with Southern Region lines to the South and Kent Coasts. Detailed maps on a larger scale are printed on the back of the sheet showing the Birmingham, Bristol, and South Wales districts, and the principal railways of Ireland. London and the home counties are represented by two maps, one extending from Greenford in the west to East Ham in the east, and the other showing the River Thames between London and Oxford, with the Western Region lines serving its banks and the adjacent country. Locks, islands, and river distances from London Bridge are shown on this map.

* * * *

Amalgamation of East African Railways

A proclamation and order published in the *East Africa High Commission Gazette* of April 30, gave effect as from May 1 to the amalgamation of the Kenya & Uganda Railways & Harbours and the Tanganyika Railways & Ports Services, the combined system being known as the East African Railways & Harbours Administration. Preliminary steps towards the merger were reported in our issues of January 9 and April 9. Mr. A. Dalton, who has been Acting General Manager of the Kenya & Uganda Railways & Harbours since January 1 this year, has been appointed Acting General Manager of the amalgamated system; and Mr. J. R. Farquharson, formerly General Manager of the Tanganyika Railways & Ports Services, becomes Acting Deputy General Manager. The direction of the combined transport system is in the hands of the East Africa High Commission, with an executive organisation on which Sir Reginald Robins has the post of Transport Member. Both railways are of metre gauge, the Kenya & Uganda system having a route-mileage of 1,625, and the Tanganyika Railways of 1,360. A branch from Voi, on the Mombasa-Nairobi line of the Kenya & Uganda Railways, enters Tanganyika and runs to Kahe, where it connects with the Tanga-Arusha line of the Tanganyika Railways.

* * * *

Precise Measurement as a Production Aid

The system of inspection still used in many engineering works by which substandard parts are rejected is becoming outmoded. This is well demonstrated in a new film by the Department of Scientific & Industrial Research called "Precise Measurement for Engineers," which shows the modern system of statistical record, or quality control, in action. A graph is kept of the performance of each machine, thus enabling the supervisor to attend to the machine when the graph reaches a certain height or depth, before any rejects are produced. The purpose of the film, first of a series on science in the service of the nation, is to show the organisation which must stand behind such a system. Calipers and gauges must be checked and the instruments used to check them must themselves be checked. Obviously, the greatest accuracy possible is necessary at this stage, and the National Physical Laboratory's Metrology Division, which provided most of the material for the film, was able to show instruments capable of measuring to the nearest millionth of an inch at a preview on April 30. Sir Charles Darwin, director of the Laboratory, stressed the importance of the work, which was graphically illustrated in one of the opening shots of the film showing the hiatus in production which can be caused by ill-fitting parts. Sir Charles Darwin and others emphasised the educational value of the film; free views for engineering students can be arranged on application to the D.S.I.R. (24, Rutland Gate, London, S.W.7) or the Central Office of Information (Norgeby House, Baker Street, London, W.1).

* * * *

Locomotives to Match the Scenery

Interest in the present locomotive exchanges on British Railways flourishes in particular in places where the standardisation achieved by the former groups has reduced the number of types to be seen. Although they may lead to still more standardisation in future, the trials are hailed with pleasure for the temporary relief they afford both from uniformity and austerity. For example, an article contributed

to *The Scotsman* looks forward to a change from the customary "Black Staniers" between Perth and Inverness to green-painted engines from the L.N.E.R. and the Southern. Seeing little to choose on paper between the probable performance of the "B1" and "West Country" classes, the writer hopes that the former will win the day because "the green *Antelopes*, in colour, in name, and in grace of form, seem exactly suited to it" (the Highland line). Of the "Merchant Navy" class, he remarks that it is "altogether too gay and skittish to blend well with the country through which the line runs." This is a basis for the selection of locomotives which seems to have been ignored by the mechanical departments of the former companies, although it may have to be taken into account by the Railway Executive now that the principle of letting the public choose the colour of its trains has been accepted.

* * * *

New Locomotives for Nigeria

Vulcan Foundry Limited has completed the first of an order for twenty 2-8-2 locomotives with double-bogie tenders for service on the 3 ft. 6 in. gauge system in Nigeria. These engines, which are built to the specification and inspection of the Crown Agents for the Colonies, are described and illustrated elsewhere in this issue, and exhibit several interesting features. The makers have supplied both 2-8-2 and 4-8-2 locomotives of considerable power to the same administration in former years, but these were allowed a limit of 16½ tons on each coupled axle. It is interesting to compare these earlier types with the new design, in which the severity of the restriction to an axle-load of 13 tons has made itself felt. Weight-saving has been extended to the tender also, which weighs only 19·95 tons empty, though as much as 47·475 tons in working order. In the new 2-8-2s, two cylinders are used, in conjunction with bar frames, and there is a noteworthy attempt to achieve simplicity by utilising the same types of wheel, axle-box, and axle for the leading and trailing trucks, which are provided with roller bearings. Both Belpaire and round-topped fireboxes have been used in recent Nigerian designs; in the new locomotives the Belpaire pattern is followed, the inside firebox being made of steel. These engines should provide added comfort for the driver, as compared with earlier types. The cab-front panels are inclined at each side to give a better look-out, and the rear steam-turret is located in an external recess in the middle of the cab-front. Vacuum brake details, too, have been modified to permit the ejector, which gives out much heat and takes up space, to be mounted outside the cab on the side of the firebox.

* * * *

Transport Charges

AN article in our April 16 issue recorded the new export targets which the Government has set for our industries to reach by the end of 1948. The aim is to increase the volume of 1938 exports by 50 per cent. during the current year. The actual volume of exports for January, February, and March was far short of the target. Discussions in Parliament and in business circles have emphasised the need for reducing the prices of exports, as well as improving their quality, if our manufacturers are to compete successfully in foreign markets. The costs of producing many commodities are too high. Industry is suffering from the heavy burden of taxation and the mounting expense of social services.

During the first 15 months of its existence, the National Coal Board has failed to supply many consumers with coal and coke of the quality they require, while its excessive prices have increased the costs of generating electricity and manufacturing iron and steel to a serious extent. The immoderate level of the Coal Board's prices may hinder the revival of our coal exports, which has begun on a modest scale.

Another obstacle to the expansion of our trade often is said to be the increasing cost of transport. Traders point to the advance in overseas and coastwise shipping freights. Shipowners retort that the price of new tonnage is more than twice the pre-war figure, and that their working costs have gone up all round; in particular, river and dock dues have been doubled in some instances since 1938, but the slow despatch given both

in home ports and abroad has cancelled the advantage of the speedier vessels which have been put into service recently, causing disappointment and loss to shipowners.

There has been little criticism of late regarding the general level of railway freight rates, which was raised to 55 per cent. above the pre-war line in October, 1947. That increase was modest compared with the advance in current prices of coal, rails, timber, and other materials used by the railways in large quantities, but it cannot suffice to meet 1948 expenditures. Since the Minister of Transport approved the advance, railway traffics have not expanded to anything like the extent foretold by Government planners last November.

So far from the railways requiring another 100,000 wagons as was then suggested, it is a question of whether they have not too many wagons as well as too many locomotives, provided that repairs are not allowed to fall heavily into arrears again.

The process of straightening out the rolling stock position last winter must have been costly. Staff costs again are getting completely out of hand. A definite figure has not been furnished for the value of the concessions that have been made recently to many grades of employees, though vague hints have been published that the addition to the paybill will be expressed in millions.

Little or nothing is heard of economies under nationalisation, but a great deal about additional appointments and fresh expenditure, often of an unremunerative kind. There is no sign of the total number of staff employed being restored to the 1938-39 standard. One or two essential branches of work may be undermanned, but on the whole the railways are over-staffed in relation to the traffics now passing. All the portents are that railway expenditure is outrunning revenue. There is no prospect of the gap being closed if a policy of drift is tolerated.

The Transport Act, 1947, lays on the Commission the duty to treat all its business as one undertaking. Further, the Commission must conduct that undertaking and levy such charges as to secure that its revenue is "not less than sufficient for making provision for the meeting of charges properly chargeable to revenue, taking one year with another." At the same time, the Commission is required to prepare an annual statement of accounts to show separately the financial and operating results of each of its principal activities. So it has the delicate task of balancing its accounts as a whole, while giving fair play to each type of transport.

The Transport Act, 1947, does not lay down any clear principles on which charges are to be based, but sets up machinery for fixing transport prices that will be slow in action. The Commission is required, within two years from August, 1947, to submit to the Transport Tribunal charges schemes relating to all the services and facilities which it provides. The Transport Tribunal is the old Railway Rates Tribunal with a new title and widened jurisdiction. Its proceedings are bound to be prolonged, as charges schemes must be published and a public inquiry held if objections are lodged, as assuredly they will be. In the meantime the railway deficit will be piling up and the Minister of Transport may have to come to the rescue by authorising the Commission to increase its charges as a transitional measure.

Probably any emergency increase in railway rates would take the form of an addition to the existing percentage advance of 55 per cent. over pre-war figures. If the addition is substantial, it will be an incentive to traders to use road transport and, above all, to carry their own goods under "C" licences. Once more there will spring to the forefront, as an urgent matter, the question of adjusting rail and road rates, so that the railways can pay their way without restricting the extension of road transport unfairly.

In 1939 this problem was remitted to the Road & Rail Central Conference, but first wartime exigencies and later the nationalisation of transport prevented that body from formulating principles for reconciling rail and road rates, or settling a simplified classification for merchandise. The conference is known, however, to have collected a prodigious store of information about rail and road practices, so that the Commission should have ready to hand the relevant facts of the complex problem, which it ought to tackle without delay. There cannot be a more important subject for consideration on its agenda than this question of transport charges.

British Transport Commission Traffics

ALL sections of the British Transport Commission reported higher traffic receipts for the four weeks to April 18, as compared with the similar period a year ago. The rate of improvement, however, was less than in the previous four-weekly period. Total receipts at £30,107,000 showed a rise of £3,883,000; the increase in the previous period this year was £7,356,000. British Railways' total receipts for the four weeks at £25,486,000 advanced by £3,504,000. The greatest increase was shown in passenger takings, which at £9,922,000 are higher by £989,000. Coal and coke revenue at £4,817,000 was up by £807,000, and merchandise and livestock at £6,434,000 rose by £787,000. Minerals and merchandise (classes 1 to 6) at £2,193,000 showed the relatively large advance of £70,700.

London Transport undertakings registered receipts of £4,497,000, an advance of £364,000, and Inland Waterways yielded £124,000, an increase of £15,000. Details of the traffic receipts for the four weeks to April 18, and the aggregate receipts for the 16 weeks of the year to the same date compared with the like periods of 1947, are given below:—

| | Four weeks to April 18 | | Aggregate to April 18 | | Inc. or decr. | |
|--|------------------------|------------|-----------------------|------------|---------------|------------|
| | 1948 £000 | 1947* £000 | 1948 £000 | 1947* £000 | 1948 £000 | 1947* £000 |
| British Railways (receipts from railway working)— | | | | | | |
| Passengers | 9,922 | 8,933 | + 989 | 32,337 | 28,931 | + 3,406 |
| Parcels, etc., by passenger train | 2,120 | 1,906 | + 214 | 5,14 | 7,442 | + 1,072 |
| Merchandise (other than Classes 1-6) and livestock | 6,434 | 5,647 | + 787 | 27,711 | 20,081 | + 7,630 |
| Minerals & merchandise (Classes 1-6) | 2,193 | 1,486 | + 707 | 8,845 | 5,486 | + 3,359 |
| Coal & coke | 4,817 | 4,010 | + 807 | 20,829 | 16,045 | + 4,784 |
| | 25,486 | 21,982 | + 3,504 | 98,236 | 77,985 | + 20,251 |
| London Transport— | | | | | | |
| Railways | 1,132 | 1,030 | + 102 | 4,469 | 3,921 | + 548 |
| Buses & coaches | 2,477 | 2,267 | + 210 | 9,359 | 7,910 | + 1,449 |
| Trolleybuses & trams | 888 | 836 | + 52 | 3,394 | 2,923 | + 471 |
| | 4,497 | 4,133 | + 364 | 17,222 | 14,754 | + 2,468 |
| Inland Waterways— | | | | | | |
| Tolls | 53 | 43 | + 10 | 216 | 145 | + 71 |
| Freight charges, etc.† | 71 | 66 | + 5 | 298 | 240 | + 58 |
| | 124 | 109 | + 15 | 514 | 385 | + 129 |
| Total | 30,107 | 26,224 | + 3,883 | 115,972 | 93,124 | + 22,848 |

* The comparison of 1948 with 1947 is affected by increases in fares, rates and charges, which were introduced at different dates during the year 1947, to meet increases in operating costs.

† This figure does not include freights earned by vessels not owned by the Commission.

Total receipts of the British Transport Commission for the 16 weeks of the current year at £115,972,000 are greater by £22,848,000 compared with the similar period of 1947. British Railways, with a total of £98,236,000, have contributed no less than £20,251,000 to this improvement.

* * * *

Canadian National Railways

DURING 1947 the Canadian National Railways celebrated the opening, 100 years ago, of the Montreal & Lachine Railroad, and a reconstruction of the scene at this event appears in colour on the cover of the annual report. The scene is taken from a painting by Mr. A. Sherriff-Scott, R.C.A., which was presented to the City of Montreal by Mr. R. C. Vaughan, Chairman & President of the Canadian National Railways. The locomotive and train of those days is contrasted with one of the main-line diesels ordered by the Canadian National Railways last year, and the artistic standard of this striking cover design is maintained fully in the general layout and the illustrations throughout this centenary report.

The report states that the C.N.R. in 1947 handled the heaviest volume of peacetime traffic in its history, the total of 86,221,279 tons of goods carried being nearly double the volume in 1939, and even greater than in any of the busiest years of the war. Gross revenues of \$438,197,980 were only a fraction below those attained when wartime traffic was at its peak in 1943 and 1944. Revenue from freight traffic increased by \$42,268,804, and was \$17,682,280 higher than in the wartime peak year. In spite of these achievements, the administration was denied the full reward accruing from them by reason of the increased costs under those headings which are not related to additional

traffic. There was an increase of \$114.5 million compared with 1939 in the costs of wages and materials. Coal cost \$3.41 a ton more than in 1939, an increase of 83.4 per cent., and 6,872,000 tons were used in 1947. The average cost throughout the year for all materials used by the railway was 50.65 per cent. higher than in 1939. The directors have expressed the opinion that in considering the application of the railways for a 30 per cent. increase in rates, the Board of Transport Commissioners should make allowances for the extent to which costs have risen beyond the levels prevailing when the application was filed. Some results for the year are:—

| | 1946 | 1947 |
|--------------------------|-------------|-------------|
| Route-mileage | 23,437 | 23,402 |
| Passenger train-miles | 23,581,125 | 23,346,277 |
| Goods train-miles | 41,817,432 | 44,027,737 |
| | \$ | \$ |
| Goods revenue | 300,313,199 | 342,582,003 |
| Passenger revenue | 50,128,223 | 43,017,690 |
| All other revenue | 50,144,604 | 52,598,287 |
| Total operating revenues | 400,586,026 | 438,197,980 |
| Operating expenses | 357,236,718 | 397,122,607 |
| Net operating revenue | 43,349,308 | 41,075,373 |
| Taxes, rents, etc. | 7,629,780 | 13,132,223 |
| Interest on public bonds | 23,358,514 | 23,821,910 |
| Government interest | 21,322,583 | 20,002,435 |
| Deficit... | 8,961,570 | 15,885,194 |

In a general survey of operations, the report points out that the operating statistics indicate a year of intense activity. Goods trains operated over 44,000,000 miles and the tonnage movement exceeded 35,880,000,000 net ton-miles. Passenger train-mileage amounted to 23½ million. It is indicative of the effect of current costs that the net operating revenue of \$41,075,373 was \$4,000,000 less than in 1940, when the gross revenue was \$190,000,000 lower than in 1947. After making all deductions from income and paying interest on public and Government loans, the net income deficit for the year was \$15,885,194, comparing with a deficit of \$8,961,570 in 1946.

During the year, the new railway from Barraute to Kiask Falls was approximately half completed, and should be ready for traffic by December 1 this year. Capital expenditure on new equipment amounted to \$11,806,427, and included 25 diesel-electric locomotives, 6 steam locomotives, 1,503 goods wagons, and 2 passenger coaches. Record business was recorded by both the Canadian National Express and the Canadian National Telegraphs undertakings. On August 11, the administration placed in service the new car ferry *Abegweit*, on the route between Borden (Prince Edward Island) and Cape Tormentine (New Brunswick). The ferry can carry 19 railway coaches, 60 cars, and 950 passengers, as against the 16 coaches, 41 cars, and 800 passengers which represented the capacity of the ship it has replaced.

During the year the system abandoned 12.21 miles of line between Trelle Junction and Morinville, in the province of Alberta, and began joint use of 20.24 miles of the Northern Alberta Railways in the same district. The Department of Colonisation & Agriculture assisted in the movement of 73,000 immigrants into Canada during the year, and is organised to play an ever greater part as immigration grows with the availability of shipping space. In the concluding paragraphs Mr. Vaughan draws attention to the lack of equality of competitive conditions as between rail and highway transport.

* * * *

Railway Standards

NATIONALISATION of the British railways has produced a situation which makes the paper recently presented by Mr. T. T. Lambe to the Institution of Locomotive Engineers* most opportune. The present circumstances reproduce, on a far greater scale, the storekeeping and standardisation problems which confronted the managements of the four groups at the beginning of 1923. Although Mr. Lambe's experience largely has been with the Indian railways, that is certainly no drawback, for the measure of Government control long existing in that country makes his observations all the more interesting.

Mr. Lambe modestly disclaimed any novelty or originality in his paper, yet it remains a most useful summing-up of the directions in which standardisation of railway equipment can be pursued and the extent to which it is wise to allow it. Before coming down to details, however, he made a strong plea for uniform nomenclature in the different departments and work-

* "Notes on Railway Standards," by Mr. T. T. Lambe, read before the Institution of Locomotive Engineers on April 14.

shops of a railway. He pointed out that without some central control, there is every likelihood of different names, classification, and numbering being evolved for the different stores stock items by the various departments, which is a serious nuisance when it becomes desirable to arrange for manufacture between different workshops, or to introduce bulk purchase of any substantial ranges of articles. Mr. Lambe proposes a rational system of numbering for stores items to obviate such difficulties.

Under the subtitle "The Bits and Pieces," Mr. Lambe discusses the numerous small articles which need renewal most frequently and hence form the largest entries in storekeepers' indents. All types of fastening (split pins, cotters, rivets, bolts and nuts, screws, and studs) as well as ball and roller bearings, bushes, seatings, washers, cocks and valves, handles and levers, pipe fittings, and lubricator nipples come into this category. Springs, drawgear, and buffering gear, firebars, brake blocks, carriage and wagon wheels and tyres and axles, and various small non-ferrous items are further examples. A further range in which standardisation can be effected comprises fittings and equipment used in manufacture—machine-tool components, hand tools, cutting tools and grinding wheels.

When it has been decided how these quite extensive ranges can be covered, consideration must be given to the step sizes. As the author says, "half the work of a standards organisation is the selection of what to leave out." There is, for instance, no special advantage in standardising components which are not renewed during the life of the assembly of which they form a part. Again, where items are in general use on only one section of a railway, they should not qualify for standardisation unless their merit warrants general application. With step sizes, it is advisable to follow the specifications already published by the British Standards Institution. Wire gauges, screwed bolt diameters, diametral pitches for involute gear teeth, spring sections, and cutting tool radii are examples in which the number of "steps" in the range often can be reduced with advantage. The elimination of "the odd 1/64 in." where possible, also is to be recommended.

The largest part of Mr. Lambe's paper is devoted to the section headed "Standardisation in Relation to General Design," in which an approach from first principles is made to standardisation problems. It is perhaps the most stimulating section of the paper, as it covers practically all the external factors affecting the general design of locomotives and rolling stock, but suffers from limitation of space. The interest which the author arouses in this section is so great, and the matters raised in it are so far-reaching, that one cannot but regret that one thought-provoking idea after another is merely jotted down, with so little room for development. This section could well be expanded into another paper.

The discussion which followed the paper showed clearly that the benefits and difficulties of standardisation were well appreciated. Mr. Powell summed up matters by remarking that standardisation should be the servant of the engineer, and not his master, and gave point to his observation by referring to some of the evils wrought in India and Burma by fixing too small a loading gauge for the metre-gauge lines. Mr. Nightingale showed the lengths to which standardisation could be carried, as exemplified on the G.W.R.; he cited Mr. Lovatt Williams's article in *The Railway Gazette* of January 16, 1948, in which the tendency of each new Chief Mechanical Engineer to bring out a new type of engine (with accompanying increases in the number of jigs, tools, and store stocks) was criticised. Certainly, no line except the G.W.R. can point to a succession of Chief Mechanical Engineers so much in harmony. Mr. E. S. Cox gave an account, both witty and enlightening, of the different stages in the progress of standardisation on the L.M.S.R., under the Fowler and Stanier regimes. There was some division of opinion on the wideness of the "steps" to be recommended in the step sizes of standardised ranges of stores items, and Mr. Kenneth H. Leech scored a useful point by remarking that if the "steps" were too wide, difficulties were likely to arise when engineers were casting around for means of saving weight.

Perhaps the most interesting line of thought was that opened up by Mr. Anwell, who referred to the tendency of diesel locomotive manufacturers to lay down what sizes of items, from complete locomotives downwards, should be issued to the pur-

chasing railway administrations. This state of affairs has progressed very far in the U.S.A., largely, no doubt, because it was seized on by the makers as a means for cutting down prime cost, which in the past has been a serious economic disadvantage of the diesel.

* * * *

Reconstruction versus Disruption in China

DESPITE the enormous measure of her suffering in recent years, China is again embroiled in civil war, and this inevitably must cast its shadow on any Chinese bid for recovery. That the Chinese are facing the situation with fortitude is well known, and it is not without significance that this same quality has been reflected in the unceasing efforts of the railway administration to rehabilitate and enlarge its property in the face of communist disruption and grave material shortages. An account of the difficulties which beset the Chinese National Railways is contained in the "Report of the United Kingdom Trade Mission to China: October to December, 1946," where it is stated that during the mission's visit and the months after it, a constant process of building and destruction was going on simultaneously. In October, 1946, the Chinese Ministry of Communications reported that on five main lines north of the Yangtze and south of the Great Wall, 655 miles of track were out of operation, while 1,230 miles remained intact. In the summer, 1947, line in operation had been reduced by about 190 miles south of the Great Wall and by over 750 miles to the north.

The Trade Mission comments that the railways were in a deplorable state of disrepair, and that many lines had deteriorated to such an extent that only limited operation at reduced speeds was possible. Rails usually were much worn and of mixed sections, and fish-plates invariably were worn and not infrequently of local improvised manufacture; many sleepers were decayed and useless. The Mission was informed that communists had adopted a thorough sabotage technique which resulted in the complete loss of both sleepers and rails. Signals were inadequate and telephones and telegraphs, though generally in use, were in urgent need of replacement or repair.

The Ministry of Communications was concentrating its efforts on railway rehabilitation in the area south of the Yangtze, and though on the Canton-Hankow Railway 272 bridges were blown up and five tunnels damaged in the war, through traffic had been restored when the mission arrived in China. Great efforts with limited supplies were being made to restore traffic on the Chekiang-Kiangsi Railway, and from Henyang southwards through Kweilin to Kweichow.

Between the Yangtze and the Yellow Rivers, rehabilitation work was proceeding apace, and particular attention was being focused on the restoration of full traffic on the Pukow—Hsuchow section of the Tientsin-Pukow Railway, the Hankow—Chengchow section of the Peiping-Hankow Railway, and the Lunhai Railway. Difficult conditions north of the Yangtze are typified by the statement that through traffic on the northern sections of the Tientsin-Pukow and Peiping-Hankow Railways and the middle section of the line from Tsinan to Tsingtao were subject to almost constant interruption; it was not unusual for the Ministry of Communications to be called on to rebuild bridges some thirty times within a few months. Despite this, traffic on the Peiping-Shanhaikwan section and part of the Peiping-Suizhan Railway was being maintained.

Although restoration occupied the position of premier importance, plans for new construction were not neglected, and the mission reports that some 8,750 miles of new railway were planned for the region south of the Yangtze. It was intended to complete the railway between Chungking and Chengtu, and progress had been made with preparations for a railway west of Kunming, which certain authorities hoped would connect with the Burma State Railways at Lashio.

In summarising the railways' requirements, the mission gives first priority to sleepers, followed by rails and rail accessories, bridge steel and bridging equipment, and repair facilities and materials. Comment is made that history has proved the ability of the Chinese to build railways under the most adverse conditions, and it is clear from the details contained in this report that this ability certainly has not been lost.

* "Report of the United Kingdom Trade Mission to China, October to December, 1946," published by H.M. Stationery Office, price 5s.

| | |
|--------------------|-----------------------------------|
| 10.15 a.m. (MSO) | Kings Cross to Leeds and Bradford |
| 12.35 p.m. (FSO)* | " " " |
| 2.15 p.m. (SO)* | " " " |
| 6.5 p.m. (FO) | " " " |
| 1 p.m. (Sundays) | " " " |
| 7.30 a.m. (SO) | Leeds to Kings Cross |
| 12.25 p.m. (MO) | " " " |
| 1.5 p.m. (Sundays) | " " " |

* July 24-August 28 inclusive

(4) Additional West Riding services as follow:—

| | |
|---------------------|---|
| 11.25 a.m. | Wakefield Westgate to Bradford Exchange |
| 7.51 a.m. (Sundays) | Wakefield Westgate to York |
| 4.7 p.m. | " York to Wakefield Westgate |
| 11.25 a.m. | " York to Wakefield Westgate |
| 9.25 p.m. | " Low Moor to Leeds Central |
| 7.5 p.m. | " Low Moor to Leeds Central |

(5) On July 5 the "Queen of Scots" Pullman trains will be restored and will provide a still better service between Kings Cross and Leeds in each direction, with connecting services to and from Bradford. Seats may be reserved on these trains.

Yours faithfully,

GEORGE DOW
Public Relations Officer

Preservation of Railway Relics

"Dale View,"

16, Box Ridge Avenue,
Purley, Surrey. April 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—The historical importance of the Croydon, Merstham & Godstone Iron Railway is beyond question, and the publication of Mr. Charles E. Lee's work, "Early Railways in Surrey," in 1944 stimulated further the wide interest in this notable railway relic.

It is therefore with some apprehension that I have to call your attention to the danger in which some of the remains of the Croydon & Merstham Railway now stand. The bridges at Dean Lane (by the Tea House) and in the field near the Jolliffe Arms (on the old extension of Netherne Lane) are disintegrating rapidly through the unwelcome and unnecessary attentions of carelessly-handled lorries, children at play, and sometimes sheer vandalism.

Is it too much to ask that steps be taken to preserve these relics in suitable enclosures on the lines of that in the Purley Rotary Field?

Yours faithfully,

R. A. SAVILL

Western Region Timetable Map

The Railway Executive (Western Region),
Office of the Chief Regional Officer,
Paddington Station, London, W.2. April 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—The reference in your issue of April 30 to the fact that the first of the summer service timetables to reach you was that of the Western Region is appreciated, but whilst you are correct in stating that the familiar map of the system re-introduced in the winter issue of 1946 is omitted, it apparently has escaped your notice that a revised map of the Western Region is included in the new 1948 summer edition.

In all fairness to you this is probably due to the fact that you received a publisher's copy for review which does not contain the map. As a matter of fact, we went to extreme lengths to get a revised map into the summer edition.

Yours faithfully,

G. E. ORTON,

Chief Officer for Public Relations
[Our correspondent's suggestion as to why we assumed the map had been omitted is correct. We refer to the revised issue in an editorial note this week.—ED., R.G.]

The London Traffic Problem

34, Gordon Square,
London, W.C.1. April 12

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—Your correspondent's article in your issue of April 2, on the part which the railways could play in the solution of the London traffic problem, reflects a line of thought which is becoming out-moded by the pressure of current events.

Briefly, he recommends either the provision of employment in growing residential areas, or decantation to places at least 100 miles from London. Both these suggestions, though excellent in theory, are unobtainable in practice. The present efforts to control the location of work and residence are being overwhelmed by the natural drift. London's population has been growing recently at the rate of one-and-a-half New Towns a month—far faster than any form of artificial control could possibly check.

Nevertheless, your correspondent is probably right in supposing that the railways could play an effective part in solving the problem, but this must be done by making the desirable pattern of things attractive. To build factories where they have shown little aptitude to develop, or to "decant" elsewhere, would be merely to repeat present failures. The natural tendencies are for trade and industry to develop where meeting is easy, and for people to live where they will not be "buried alive." Both these factors depend on transport.

The distribution of work and residence is a national problem, and the transport network required to solve it needs to be conceived on a national basis. By all means—as your correspondent suggests—avoid uneconomic proposals; the energy on railway improvements could be used most effectively, I suggest, by making the desirable pattern of the national plan naturally attractive. This depends on good cross-country rail communications (involving but few structural changes). The focal points in the transport network thus resulting would become natural sites for "New Towns," "decanting," "provision of opportunity" or whatever catch-phrase may be popular at the time.

The operation of some of the rail links in this network might well be considered uneconomic by ordinary standards, but we should remember that the problem is piling up on us at the rate of one-and-a-half New Towns a month in London alone.

If a good cross-country long-distance railway network could be instrumental in solving this problem, its cost surely would be insignificant compared with that of coping with an additional New Town every 20 days!

Yours faithfully,

R. B. HOUNSFIELD

Railway Statistics

London. May 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—It is a pity that your correspondent who signs himself "Statistician" (your issue of April 30) has not taken the trouble which any good statistician should put himself to by reading the headings of the various statements he quotes. The monthly *Digest* figures he refers to are described distinctly as relating to the main-line railways, whereas the White Paper statistics were indicated clearly as covering the railways of Great Britain, excluding London Transport and the Manchester Ship Canal Company. I should like to add that the heading given to the letter in your publication is in itself "misleading"!

Allow me to claim the same type of anonymity as "Statistician" by signing myself as

Yours faithfully,

ACCURATE

Transportation Services in War

The Railway Executive (Western Region),

Divisional Superintendent's Office, Worcester. April 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—I was indeed gratified to see the case for a single Transportation Corps advocated by Colonel Jesper in his letter of April 2. [See our April 16 issue.—ED., R.G.]

During one period of hostilities in the Middle East, the whole of road and rail Movements & Transportation in the Western Desert of Egypt, and a small amount of port working at Mersa Matruh, was placed under one officer and one headquarters. He happened to be the Commanding Officer of the New Zealand Railway Operating Group.

My experience (both from a G.H.Q. angle and later as a Railway Operating Group Commander in the Western Desert) of this organisation of unified control over the three main branches of any L. of C. convinced me that it could not be bettered.

On moving to Italy, where the Movements and Transportation were again separate, it felt like putting the clock "back" instead of "on." I sincerely hope the authorities will give serious thought to the reorganisation of this most important branch of the Army as suggested by Colonel Jesper.

Yours faithfully,

C. F. E. HARVEY,
Divisional Superintendent

NEW TURNTABLE AT CREWE.—A new 70-ft. dia. turntable has been installed at the Crewe South Motive Power Depot of the London Midland Region. This replaces a former 60-ft. turntable, and enables the largest class of 4-6-2 express passenger engines to be turned on the South Shed, thus avoiding the occupation of the running lines hitherto involved in turning them on an adjacent triangle.

The Scrap Heap

WHITE ELEPHANTS?

Rangoon, Thursday.—Talks are going on about compensation for elephants and equipment of British-owned timber companies, which are to be nationalised.—*From the "Daily Express."*

100 YEARS AGO

From THE RAILWAY TIMES, May 6, 1848

LONDON and NORTH-WESTERN RAILWAY.—ADDITIONAL EXPRESS TRAINS and ALTERATIONS IN DEPARTURES.

DOWN TRAINS.

The public are requested to take notice that, on and after Monday, the 1st of May, a Morning Express Train will be despatched from Euston Station at 9 a.m. to Leamington, Birmingham, Liverpool, Manchester, Glasgow, and Edinburgh. This train will take private carriages (but not horses) for Edinburgh and Glasgow only.

In consequence of the above, the trains leaving London at 7 a.m., 7:30 a.m., and 8:30 a.m., will be despatched respectively at 6:45 a.m., 7:15 a.m., and 8:35 a.m.; and corresponding changes will take place at the road-side stations.

The train now leaving Birmingham for the north at 12 noon will be despatched at 12:15 p.m.

In consequence of the opening of the North Staffordshire Railway the train leaving Birmingham at 6 a.m. for Liverpool and Manchester will be despatched at 6:30 a.m., and will be accelerated.

The train leaving London at 3:45 p.m. will call at the Tring Station.

UP TRAINS.

The train leaving Liverpool at 9:30 a.m. and Manchester at 9:40 a.m. will be made a stopping train, leaving Liverpool at 8:45 a.m., and Manchester at 9 a.m., and calling at all the principal intermediate stations north of Rugby.

A Morning Express Train will be despatched from Liverpool at 9:30 a.m. and Manchester at 9:45 a.m. to Birmingham, and to London via Trent Valley.

The train leaving Chester at 10 a.m. will be despatched at 9:45 a.m., and cease calling at the Nantwich Station.

The Midland Express Train from Edinburgh, leaving Rugby at 6:30 p.m., will be despatched at 7:30 p.m.

The train leaving Birmingham at 5:45 p.m. will be despatched at 5:30 p.m.

The Short Train leaving Tring at 8:30 p.m. will be despatched at 8 p.m.

The train leaving Bedford at 9:45 a.m. will call at the Tring station.

An express train from Edinburgh and Glasgow will join the up evening express train to London at Warrington.

Various changes will be made on the Peterborough, Leamington, and Preston and Parkside branch lines, in consequence of these alterations, for which see local bills.

An additional train, with 1st, 2nd, and 3rd class passengers, will leave Liverpool for Manchester, and Manchester for Liverpool, respectively, at 6:45 a.m.

The Chester and Holyhead Railway will open as far as Bangor on the 1st of May, and all information regarding stations and trains will be contained in the time table.

New bills for all the sections of the line may be had at any of the Company's Stations on and after the 28th inst.

By order of the Board of Directors,

MARK HUISH.

General Manager's Office, Euston Station,
April 25, 1848.

* * *

CIVIL SERVICE ENGLISH

I have always admired Harold Nicolson's prose, if not always his views. This opinion is reinforced by reading his article on *Civil Service English*, which reveals an astonishing lack of perception of what goes on in Government departments. To say that Government officials have to dictate fifty letters in the course of a single morning's work, as well as some hundred minutes, in addition to spending long hours in conference, is an exaggeration of the first order. I have had many years of experience of work in a Government department as a senior official. I have yet to meet the civil servant who has to cope singly with such a volume of work. Neither have I met his like in business, in which sphere I have had even longer experience.

Very few civil servants dictate their letters as a matter of course. The very nature of their work compels them to

weigh carefully every word of a written communication, and justly so when sleuths abound at every turn to pounce upon every utterance. This quite apart from the notorious lack of shorthand typists in most Government departments. The usual procedure is for matter to be written out in longhand and passed to a long-suffering typists' pool, who struggle to interpret the often illegible handwriting of both senior and junior officials.

But quite apart from the principles of organisation and method, I take exception to the continual criticism of official English coming from both inside and outside the civil service from those who, it is clear, have not had an opportunity of studying the subject fully. The general standard of day-to-day English in the civil service is of a very high order, and indeed surpasses anything coming out of a business organisation. One has only to work in a Government department and have an opportunity of examining the files to realise the Nicolsonian excellence of official prose. And, by comparison with much commercial jargon, the civil servant is a purist.—*A. A. Garnett in a letter to "The Spectator."*

* * *

"UMBRAJE"

A big slump in lost umbrellas is reported by London Transport.

The annual report of the Lost Property Office, just completed, shows that "only" 26,611 umbrellas were left by passengers on London Transport vehicles last year—7,555 or 22 per cent. less than in the previous year. The improvement is attributed to last year's fine summer.

Loss of spectacles, by contrast, rose to the figure of 8,862 pairs, which is 1,177 or 15 per cent. more than in 1946. Also lost on London Transport vehicles were:—

| | | |
|---------------------|--------|-----------------------|
| Gloves (pairs) ... | 45,966 | Little change |
| Gloves (single) ... | 21,288 | 6 per cent. increase |
| Books ... | 22,528 | 6 per cent. increase |
| Cases and bags ... | 31,280 | 2 per cent. increase |
| Keys ... | 8,991 | 12 per cent. increase |

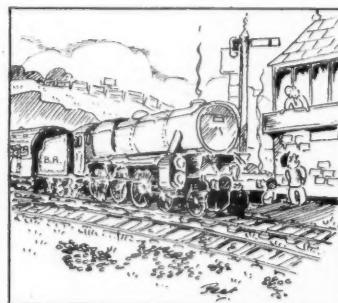
The total number of articles lost was 281,027.

It is a curious fact that though every loss is an independent occurrence with an independent cause, the total of articles lost in 1947 was almost exactly the same as in 1946.

* * *

MR. GAITSKELL DEFENDS THE BOARDS

Denial that members of the Boards of nationalised industries are overpaid was made by Mr. Gaitskell, Fuel Minister, speaking at Leeds. He asserted that this "smear campaign" was intended to discourage able men from accepting appointments on the Boards.—*From the "Daily Graphic."*



"Come on mate! . . . 'ow much longer? . . . this 'ere ain't the Russian zone of Germany you know! . . ."

DISILLUSIONED

Railway catering services rose in the estimation of a young man who boarded a dining car attached to the "Royal Scot." He enjoyed coffee, cigarettes and cigars—all free. At Rugby, however, the young man, red-faced, alighted after he had discovered himself to be inadvertently mixed up with the shake-down cruise of the Shaw Savill liner *Mataroa*.—*John Bouvierie in the "News Chronicle."*

* * *

WILD WEST ON THE SOUTHERN

A boy of about 13, who was found without a ticket on a Salisbury to Waterloo train on May 4, produced a revolver and shot the guard in the shoulder after being taken to the guard's van. He then threatened a travelling ticket collector with the revolver and jumped out of the train, which had slowed down in consequence of the communication cord being pulled. He was last seen running across Wandsworth cemetery, which is adjacent to the line at the point east of Earlsfield Station where the train stopped.

* * *

RE MORSE

'Twas in the "single needle" days. Ere telephones became the craze, That I was told to take a course Of study of a bloke named Morse, And ultimately did aspire To venture forth upon the wire, Only to find some cross-grained stick Who jibbed at "G" and would have "tick"!

A few such spasms taught me, too, The things that one could say with "Q." And if my meaning's not quite plain, Any "old-timer" will explain.

Along this fascinating road I learned what one could do with code. How one could have some frolics, too, Among the code-book's private "zoo."

I loved those days, when TIME from Greenwich Was apt to mingle with GUM SPINACH.

And, if the staff were playing "solo," The GUM was often changed to GOLO.

If WALNUT came to me with speed, I WILLOWED back, and took no heed. And, if one threatened my interment, I gratefully acknowledged: DERWENT.

Yes, I had fun, but had to go When H.Q. signalled OHIO, Thus, transferring, in mid-career, My talents to another sphere.

So, no more could I make folks pant By blithely wiring ELEPHANT, No longer make old Chin-strap scoff By sending him a tasteful TOFF.

One thing I long-time did regret—I dallied, so I never met The tea-shop girl in the pink jersey, And couldn't try her out with MERSEY!

A. B.

Glossary

GUM—Your wire of today
GOLO—Your wire of yesterday
SPINACH—Let me know how you have disposed of the following
WALNUT—Make all necessary arrangements
WILLOW—I will make all necessary arrangements
DERWENT—Your communication received . . . and has attention
OHIO—Send on all speed
ELEPHANT—Can you trace receiving the following . . . how disposed of?
TOFF—Trains of empties on hand here. Can you accept?
MERSEY—Can you meet me at following place and time?

At the N. Comm. Mail, Lahore Mail " Sind route, Express abolish Pakista

May 7, 1948

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

VICTORIA

Design of "R" Class Locomotives

A 4-6-4 wheel arrangement has been adopted for the first time in Victoria for a new class of locomotives now being designed by the Rolling Stock Branch. The new locomotives are known as the "R" class, and ultimately will replace the "A2" class on country main-line passenger duties. Roller bearings will be used on all axles, and mechanical lubrication will be applied to the faces of the axlebox horns, in addition to the normal points previously lubricated in that manner.

The frames will be of the cast steel bar type, and the 6-ft. 5-in. coupled wheels will carry a maximum axle load of 19 tons 10 cwt. The boiler pressure will be 210 lb. per sq. in., and the tractive effort at 85 per cent. of that pressure will be 32,080 lb. A total heating surface of 2,707 sq. ft. will be provided, to which the firebox will contribute 285 sq. ft., the tubes 1,958 sq. ft., and the superheater elements 464 sq. ft. The grate area will be 42 sq. ft. Distribution will be by Walschaerts valve gear. The 8-wheel tender will carry 9,000 gal. of water and 6 tons of coal.

INDIA & PAKISTAN

Railway Acquired by Government

The Government of India bought the Pachora-Jamner Railway on April 1. It had been owned by the Pachora-Jamner Railway Company, and worked through the agency of the G.I.P.R. The railway consisted of 35 route-miles on the 2-ft. 6-in. gauge.

New Indian Restaurant Car

A new restaurant car built at the Madras & Southern Mahratta Railway workshops, Madras, has been on private view in Delhi. The car is equipped with a refrigerator, and has improved serving and seating arrangements. The Railway Minister, Dr. John Matthai, members of the Advisory Committee, and officers of the Railway Board, inspected the car on March 30. It is proposed to manufacture the cars in large numbers after the design has been approved.

Modernising the Port of Karachi

The enhanced importance of the port of Karachi (see *The Railway Gazette* of March 5) has hastened the preparation of plans and estimates for its general improvement. It is reported that a sum of £54 million is proposed to be spent on modernising this port, which is so closely connected with the North Western Railway. All the 17 wharves are likely to be rehabilitated, and work is expected to begin at an early date.

"Karachi Mail" becomes "Pakistan Mail"

At a meeting held recently in Karachi, the North Western Railway Advisory Committee decided that the "Karachi Mail," running between Karachi and Lahore, is to be renamed "Pakistan Mail" and extended to Peshawar; and the "Sind Express," running on the same route, is to be renamed "Pakistan Express." The committee also decided to abolish the Priorities Organisation on the Pakistan railways and to allot the func-

tions of the controllers of priorities to the Chief Operating Superintendent, North Western Railway; and the Chief Traffic Manager, Eastern Bengal Railway.

CEYLON

Peradeniya Bridge Restored

The restoration of the bridge over the Mahaweli Ganga at Peradeniya, near Kandy, was reported briefly in *The Railway Gazette* of April 16. Four of the spans were washed off the piers by the

routing and strengthening of the track will cost nearly £5,000,000.

When completed, the work will permit the operation of heavier and more powerful locomotives, with a resultant speeding up of services, and will increase the traffic capacity of the line to a marked degree. The proposed new line will be the most easily graded main route from any port in the Union to the interior, since the gradients will become 1 in 80 (compensated) as against 1 in 40 (uncompensated) on the existing line. At the same time, many complete circles of curvature will be eliminated.

Initially it is proposed to begin the work of construction on the difficult section between Aicedale and Cookhouse, where the

Flood Damage Repairs in Ceylon



Concluding stages in the restoration of the Peradeniya Bridge after the washaway of four spans in the floods of last summer

severe floods of last summer (see *The Railway Gazette* of October 10, 1947), and an illustration of the bridge after the washaway appeared in the January 2 issue this year. The photograph now reproduced was taken from the same angle as the former one, but shows the final stage in the restoration of this bridge, carried out under the direction of the Chief Engineer, Mr. W. A. Shaw.

The two outside 60-ft. spans were first salvaged and placed in position. After repairs to the two abutments and piers had been completed, the two centre spans of 100 ft., which practically had to be rebuilt, were launched through the 60-ft. spans on each side, over sleeper cribs carrying temporary service girders. Although the work was interrupted by rising of the river and heavy winds, the time taken to complete the restoration was under five months.

SOUTH AFRICA

Cape Midland Line

Preliminary work has begun on further sections of the main line between Port Elizabeth and Naauwpoort, which is being re-graded, re-routed where necessary, and improved generally. The present programme of improvements, for which most of the survey work has been completed, entails the re-grading and deviation of long sections of the line, and the construction of a number of tunnels and new bridges. It is estimated that this re-

railway climbs out of the basin of the Bushman's River, over a mountain range, into the valley of the Little Fish River, and then across another range into the Great Fish River valley. Further north, the line will make frequent crossings over the Great Fish River.

UNITED STATES

Reduction of Conditional Stops

In making a recent revision of its passenger train timetable, the Missouri Pacific has reduced the number of conditional stops shown from 52 to 3. This has permitted a considerable simplification in the number and variety of references required in the timetable columns.

In commenting on this measure, the *Railway Age* advocates the taking of similar steps by other railways, since passengers making cross-country journeys may be deterred from rail travel by the fact that one or more of the connections depends on a conditional stop, which can be called for only by travellers originating from stations previous to that at which the cross-country passenger is beginning his journey.

Chicago to Coast Accelerations

Since February 29 the running times of the "City of Portland" and "Los Angeles Limited" expresses operated by the Chicago & North Western and the Union Pacific between Chicago and the Pacific Coast have been revised. The

westbound "City of Portland" now leaves Chicago 1 hr. 5 min. later, while the eastbound train reaches Chicago 40 min. earlier, the arrival at Portland and departure from there remaining as before in both cases. The "Los Angeles Limited" now reaches Los Angeles 30 min. earlier, with the same departure time from Chicago; but the eastbound schedule of this train is unchanged.

ITALY

Railway Traffic Recovery

Recent statistics point to a considerable expansion of railway traffic during 1947. The combined volume of passenger and goods traffic handled in that year reached about 57 per cent. of the level attained in the operating year ended June 30, 1939. The level expected for the current year is 75 per cent. of that in 1938-39.

Passenger train-km. in 1947 rose from 28,720,528 in the first six months to 36,795,224 in the second half of the year, as a result both of the increase of services and of the reopening of recon-

structed lines. The expansion of approximately 28 per cent. exceeded that of 17 per cent. recorded in respect of goods train-km., which rose from 21,014,313 km. in the first half of 1947 to 24,533,894 km. in the second half.

FRANCE

Operating Results in 1947

S.N.C.F. operating results in 1947 improved on the pre-war period, despite a reduction in the railway staff from 515,000 in 1938 to 484,000 in 1947. Twenty per cent. more passengers were carried in 21,400 coaches in 1947 than by 37,058 coaches in 1938. Freight traffic also increased in 1947 in comparison with 1938:—

| | 1947 | 1938 | Inc. or dec. per cent. |
|-----------------------------|-------------|-------------|---------------------------|
| Wagons loaded ... | 13,563,000 | 15,529,000 | -12.7 |
| Goods carried (tons) ... | 140,500,000 | 132,290,000 | +5.8 |
| Ton-km. (millions) | 37,040 | 26,520 | +39.7 |

Quick turn-round of wagons accounted for the improved result. The time between

two loadings was cut from 12 to 7 days on the average. The result was also due in part to an increase in the average load from 9 tons in 1938 to 11.4 tons in 1947. Although the total tonnage rose from 132 million tons in 1938 to 140 millions in 1947, the Monnet plan called for a target of 160 million tons. This target was not attained because of the strikes, which hampered both the S.N.C.F. and railway transport users.

S.N.C.F. Rates Policy

Concurrently with reconstruction, the S.N.C.F. has pursued a policy of rates reform to give railway users a share in the increased yield due to progress in railway technique and management. Last year the freight rate for full wagon loads was fixed on the basis of the cost price. This average cost price, and not the goods value, now forms the basis for classifying goods in the S.N.C.F. rates schedules. Further, the rates are graduated in a way that benefits consignors using rail transport economically, reductions being granted for wagons run with full loads.

Publications Received

British Standards Institution Yearbook, 1947. London: British Standards Institution, Publications Sales Department, 24, Victoria Street, S.W.1. 8½ in. x 5½ in. 324 pp. Price 3s. 6d. (post free).—This yearbook gives a subject index and a synopsis of each of the 1,400 British Standards now current. These standards have been prepared by representative committees of 50 different industries. The yearbook includes lists of members of the general council, the divisional councils and the industry committee of the Institution, as well as other useful information about its work.

Motor Transport Goods Guide (Road Services). London: Iliffe & Sons Ltd, Dorset House, Stamford Street, S.E.1. 11½ in. x 8½ in. 180 pp. Price 1s. 6d.—The latest edition of this well-known guide has been revised to January, 1948, and includes details of regular long-distance road transport services and clearing houses for goods throughout the country. Firms catering for specialised loads, such as heavy machinery and liquids, are listed separately. A notable innovation is the section dealing with air transport, in which the names of nearly 50 air charter companies appear. The comprehensive index to towns, services, and routes is particularly useful.

Electric Accumulator Manual. By T. C. Elliott. London: George Newnes Limited, Tower House, Southampton Street, W.C.2. 8½ in. x 5½ in. 158 pp. Illustrated. Price 16s. net.—By reason of its chemical characteristics, the accumulator sometimes receives less attention in electrical text books than is warranted by the importance of its numerous applications. The author of this book deals in detail not only with the fundamental principles of various types of secondary battery, but also with the practical features of its maintenance.

A considerable portion of the work is devoted to the use of accumulators of all sizes and capacities in various branches of industry, including transport. These notes are necessarily brief in consequence of the wide range of subjects covered, but provide a useful illustrated outline of modern practice, together with circuit diagrams of such railway applications as track circuits, and the starting arrange-

ments for diesel-electric locomotives. As examples of railway battery locomotives, Mr. Elliott describes the shunters used at the West India Dock coal depot of the London Midland Region, and the well-known machines employed by London Transport in constructional and maintenance operations.

The British Locomotive Shed Directory. Compiled by R. S. Grimsley and published by him at 18, Graham Crescent, Rubery, Birmingham; also compiled by F/Lt. A. L. F. Fuller and published by him at 27, Elmfield Crescent, Moseley, Birmingham. 8½ in. x 5½ in. 108 pp. Paper covers. Price 7s. 6d.—Although, during the war, there was a total ban on visits to motive-power depots, restrictions now have been removed as far as possible, and many members of the great host of locomotive admirers are taking advantage of the instructional facilities offered by such visits. To such admirers, this guide to main-line locomotive depots should prove most valuable, as it contains lists of locomotive sheds and works in England, Scotland and Wales, and gives full directions for locating them.

Cincinnati Milling Machines Bulletin. Difficulties over paper supplies and printing have led Cincinnati Milling Machines Limited, Birmingham, to replace its former quarterly report with a series of bulletins which will be issued from time to time. The first bulletin, dealing with die sinking, is fully illustrated with photographic reproductions and explanatory diagrams of workshop methods.

Annual Report, 1947, Timber Development Association. It is in times of material shortages that the work of research and educational organisations is most appreciated. Thus, work on substitute timbers, economy in the use of timber and methods of lengthening its useful life has brought the T.D.A. more into the public eye than ever before. Its membership is increasing, its timber technology classes now number 97, its timber brains trusts have proved popular, and a valuable research programme is in hand. Thirty housing authorities have adopted its new design of pitched roof and work has been done also on flooring construction. This booklet also reports the com-

mencement of further experimental work on chemical seasoning, which was begun as the result of a visit to the G.W.R. wagon works at Swindon, where difficulty was being experienced in seasoning large-dimensioned English oak. Tests are still going on with the help of railway engineers and with the collaboration of Imperial Chemical Industries Limited and the Forest Products Research Laboratory.

Port of Bristol. Published under authority by F. G. Warne Limited, 5, Marsh Street, Bristol. 10 in. x 7 in. 124 pp., with numerous photographs, tables, and coloured plans.—This official handbook, now published for the second time since the war, outlines the economic and commercial advantages of the Port of Bristol as a pivotal point for the reception of merchandise from all parts of the world and for its distribution. A radius of 100 miles from Bristol embraces a population of more than 12½ millions. The docks at Avonmouth and Portishead are equipped with railway sidings alongside ships, warehouses, granaries, transit sheds, cold stores, timber yards, etc., while at the City Docks similar facilities exist, and all the docks are grouped for the purpose of railway rates and charges.

Dunlop Service to the Railways. Malayan rubber plantations have made a speedier recovery than even the most optimistic prophets had dared to hope. Their output, added to the great synthetic production built up during the war, promises the rubber industry ample supplies of its basic requirement. This is a factor for which railway engineers and others associated with transport should be grateful, as this booklet sets out to prove with a wealth of illustration and example. It sets forth the uses and advantages of rubber, not only in locomotives and rolling stock, but in insulating delicate signalling apparatus against vibration, electrical insulation, protection of staff against weather and working conditions, and in many other functions.

The Dunlop Organisation makes good its claim in the introduction that its services to the railways and associated transport services are designed to cover their long-term development programmes as well as the post-war reconditioning era.

Contribution of the Railways to the Burma Campaign

An account of the achievements of British, Indian, and American railwaymen in maintaining and improving the Assam lines of communication

A CONTRIBUTION to railway history was made recently when Sir George Cuffe* delivered a detailed address on the subject of the Assam (or Burma campaign) lines of communication during the war. Some of the events and developments he recounted, which have not been reported in such detail previously in these columns, are summarised in this article. Previous articles on this subject have appeared from time to time in these pages, notably in the issues of January 4 and 11, 1946, and February 9, 1945.

600 Miles of Indian Railway under U.S. Control

Perhaps the most important information in Sir George's address concerns the operation of about 600 miles of metre-gauge line of the Bengal Assam Railway by American railway troops and the circumstances leading up to it. In the autumn of 1943, after Admiral Lord Louis Mountbatten's visit to China, the Assam lines of communication were faced with a demand for the tonnage carried to be stepped up to 5,700 tons a day by January, 1945, and to about 9,000 tons a day by January, 1946.

Line-doubling, extra crossing stations and other additional facilities were well in hand

by the engineers, but this demand also called for greatly augmented running staff. Indian resources in this field were already nearing exhaustion, and the training of fresh recruits was considered much too slow to fill the gap. Dilution had been carried out up to or even beyond safe limits, and neither additional assistance from military operating units, nor transfer of volunteers from other railways in appreciable numbers could be expected.

The American Army came to the rescue with an offer to send out immediately six battalions of railway troops, five operating and one workshop, consisting in all of some 4,700 fully-trained officers and men. Accordingly, these units were sent early in 1944 to operate the through west-to-east line from Katihar through Parbatipur, Amingaon, and Lumding to Tinsukia. The vast construction works in progress remained in the hands of the Bengal Assam Railway.

In addition to the determination, drive, and good temper of these American railwaymen, several conditions favoured the success of this unusual move. Most important was the fact that each operating battalion had 27 officers, all professional railwaymen, and mostly with considerable operating experience. The length a battalion had to work on an Indian railway would normally be in charge of one Movement and one Power Officer. The supervision which the Americans were able to provide was, therefore, of a standard that no Indian railway could hope to approach.

Moreover, they were helped considerably by the influx of powerful types of locomotive from both the United States and Canada, wh.ch began before the American troops' arrival and continued in such numbers that they were able to be standardised for the principal haulage duties.

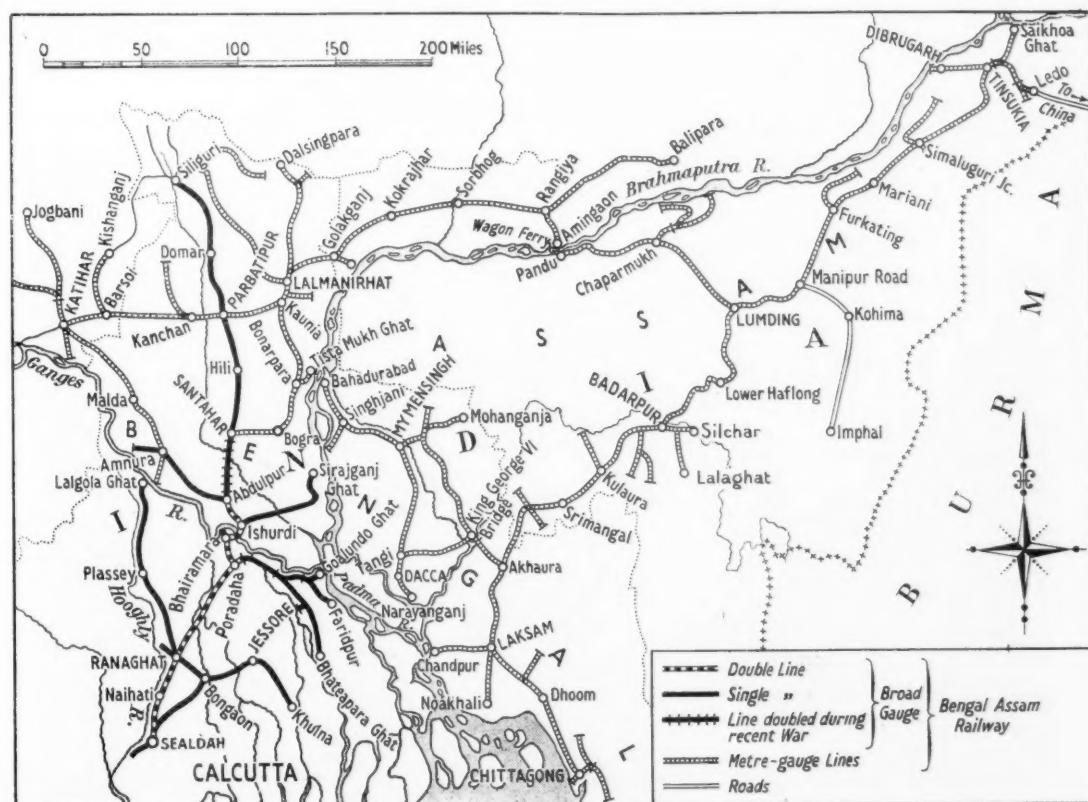
The Brahmaputra Wagon Ferry

One of the subjects covered by Sir George was the improvement in the Pandu-Amingaon wagon ferry service over the Brahmaputra River. Originally a single ferry, it had been doubled in 1942, and when the American railway troops arrived in February, 1944, taking over the operation of this section of the communications, the construction of a third and fourth ferry was in progress. It was then considered that four ferries would be required to carry 600 wagons each way daily, an assumption completely belied by subsequent achievement with three ferries only; the fourth was never completed.

Although the American battalion for this section had previously paid great attention to the method of working the ferry, the immediate result of their taking it over was chaos. Consequently, after a few days, their Commandant wisely decided to withdraw his men, and leave the working of the ferry itself in the hands of Indian railway personnel, under whom it had previously been functioning smoothly. Only one member of the ferry staff, the superintendent, was British, the remainder being Indians.

The energy and ample supervision of the U.S. railway troops were concentrated on increasing the rate of feed of wagons to the ferry, with the result that the number of wagons carried by the

* Sir George Cuffe was General Manager of the Bengal Assam Railway from September, 1943, to April, 1945, when he became Director General of Railways, Calcutta, and a member of the Central Control Panel responsible for controlling the integrated movements of the Assam lines of communication, feeding the United Nations' troops on the Assam-Burma frontier, and maintaining the air lift over "the hump" to China.



Lines of the former Bengal Assam Railway concerned in supplying the Burma Front.

double ferry rose within a month from 250 to 327 each way daily; within two months it had risen to 411. With the opening of the third ferry the number rose to over 700, and in February, 1945, the average number of upwards wagons reached 791, and the number of downwards, 784.

This remarkable achievement proved that the real problem of the wagon ferry as a whole was not the working of the ferries themselves so much as the organisation and rapidity with which incoming trains could be broken up and distributed ready for ferrying and vice versa. Actually, the record figures for the three ferries for a single day—though not for the same day in both directions—were 963 wagons upwards and 1,028 in the down direction.

Broad Gauge Traffic Density

Meanwhile, some interesting traffic operation was taking place farther west on the broad-gauge main line of the Bengal Assam Railway from Calcutta to Siliguri, and in particular between Abdulpur and Parbatipur. When war broke out the line was double as far as Abdulpur, 136 miles from Calcutta, but wartime traffic continued heavy thence to Parbatipur (mile 235) and especially as far as Santahar (mile 173), where some of it was transhipped to the metre-gauge line via Bogra and Bonapara. It was, therefore, early decided to carry the doubling on to Santahar, but meanwhile this single-line section was something of a bottle-neck. Due largely to the introduction of the "flow" (or periodic one-way) system, it was, however, found possible to work as many as 20 trains each way daily over this 37-mile section.

The "flow" system involved the entire working of the section in one direction for 12 hr., and then in the opposite direction for the next 12 hr. Though this operating method entails the bunching of traffic at the terminal points, it was found that it speeded up movement generally, and maintained a reasonably satisfactory rate of flow even in the event of a traffic control failure.

Normally, the faster movement of trains is assured by careful and constant scrutiny of the control chart, which immediately shows a droop in the graph of any one of a series of trains following one another at section intervals, indicating the inability of this particular train to "keep station" or maintain the same average speed as the others. The laggard can then be side-tracked at the next station to avoid delay to following trains. It can be allowed to proceed when a suitable gap occurs in the flow, but should the following trains make up on it a second time, it can again be side-tracked. In practice side-tracking for this reason was rarely necessary.

The targets set were 20 trains each way a day to Parbatipur and 32 to Santahar; the latter figure was easily attainable once the Abdulpur-Santahar section had been doubled. In order to run 20 trains onwards over the single-line, 62-mile section to Parbatipur, it was necessary to ensure that no delay occurred in the receipt of trains at that important transhipment junction, causing blocking back southwards. A new transhipment yard was constructed there, and the last block section from Bhowanipur into Parbatipur was also doubled, to make quite sure that no such delays occurred. Moreover, a six-line holding yard was put in at Bhowanipur.

so that, if necessary, trains could temporarily be terminated there and subsequently worked into Parbatipur—by engines sent out thence over the double line—at any time regardless of the flow.

Actually, the 20-train figure was thus attained and sometimes exceeded, and there was more concern latterly in maintaining the flow over the heavier-traffic double-line sections nearer Calcutta, where the type and distribution of traffic was less uniform. Even there, however, it was evident that the highest demand of 63 trains each way could be met without difficulty. This figure was, it may be noted, highly creditable under Indian conditions.

The operating methods employed by these American troops—notably the despatcher system and their drastic measures when accidents occurred, such as the hurling of derailed stock down embankments with the aid of bulldozers—have already been mentioned in these columns. With one or two exceptions, as in the case of the wagon ferry, the change-over and subsequent working went without a hitch, and the results achieved quickly justified the employment of the Americans.

By November, 1944, the daily tonnage handled had risen to 7,355, and, after the opening of various double-line, metre-gauge sections in January, 1945, a further spurt occurred and the daily average rose to 8,556 tons. The final peak was in April of that year, when 8,975 tons a day were carried, a great achievement secured by pushful American methods aided by some wonderful construction work by British and Indian engineers, and by co-operation at all levels between British, American, and Indian personnel.

Modernisation of Toton Up Yard, L.M.R.



Excavation in progress at Toton in preparation for the new layout and mechanisation of the up sidings described in our April 9 issue

Mechanised Container Experiments in the U.S.A.

Built-in hydraulic apparatus facilitates transfer between road vehicles and rail wagon



Container being transferred by winch from wagon to lorry

AN experimental service was begun on the Illinois Central on February 2 between Chicago and Memphis with a new type of aluminium container for small consignments. The containers, which were described recently in our American contempor-

ary, the *Railway Age*, are of aluminium construction, and are manufactured by the Reynolds Metals Company, Louisville. A special feature of the containers and the road vehicle for transporting them is the use of hydraulic machinery to facilitate

transfer to and from the railway wagons.

A hand-operated hydraulic system built into the container is used to extend and retract two wheeled carriages in the container base, by means of which it can be moved laterally between road vehicle and rail wagon. Adjustment of height is achieved by hydraulic rams built into the road trailer, and operated from a power pump on the tractor. By elevating the rams on the side away from the wagon slightly more than those on the other side of the trailer, the container may be rolled into position on the wagon with great ease, and the transfer of an empty container can be accomplished by one man.

A winch and pulley block on the road trailer, also hydraulically operated, are used to transfer a loaded container from a railway wagon. While in transit either on the railway wagon or the road trailer, the container rests on its own base so as to relieve the hydraulic system of any load.

In the initial experiments, 12 containers (known as Trailer-rails) and two tractors and trailer units have been used. The containers are conveyed on fast goods trains in both directions, providing second-morning delivery at destination. Goods are conveyed from consignor to consignee without any intermediate handling when full loads are available.

The railway provides steel stands on which the containers can be deposited after unloading from the railway wagons at places where the customer has insufficient platform space. The containers measure 19 ft. 11½ in. x 7 ft. 1½ in. x 7 ft. 0¾ in. inside. The door opening is 6 ft. 7 in. wide and 6 ft. 6½ in. high. Unloaded, each container weighs 3,550 lb., and has a capacity of 1,005 cu. ft.

Main-Line Diesel-Electric No. 10000 at Elstree



The 2.15 p.m. St. Pancras—Manchester express near Elstree, London Midland Region, hauled by diesel-electric locomotive No. 10000, described in our January 2 issue

Photo: T. Handford

[P. T. Handford]

Mechanised Container Experiments in the U.S.A.

(See article on page 545)



Tilting the container by hydraulic system to facilitate transfer to rail wagon



Hydraulic controls for tilting container as seen in view on left



Containers loaded on flat wagons and anchored. Any flat wagon may be used, as no special fittings are required for this purpose

Twenty New 2-8-2 Locomotives for Nigerian Railway

Vulcan Foundry Limited is building locomotives of a new design for the 3-ft. 6-in. gauge, to negotiate 5-ch. minimum-radius curves

THE first of twenty 2-8-2 locomotives of new design, with double-bogie tenders, recently has been completed at the works of Vulcan Foundry Limited, Newton-le-Willows, to the specification and inspection of the Crown Agents for the Colonies. Required for the 3-ft. 6-in. gauge, to which the Nigerian system is laid, the axleload on any pair of coupled wheels is restricted to 13 tons; but the engine is built to give a figure as near this limit as possible, to enable the maximum adhesive weight to be provided. The engine, which is required to negotiate curves having a minimum radius of 5 ch., has a tractive effort of 29,800 lb. at 85 per cent. boiler pressure, and an adhesive factor of 3·86.

The main frames are bar type, 4 in. thick, effectively braced throughout by cast-steel cross-stretcher and drag-castings. The pedestal bearings are fitted with cast-iron wedges and liners, and are secured at the bottom by forged-steel stays. Overhung springs are fitted, and the spring gear is not compensated.

Cast-steel axleboxes with phosphor-bronze bearings, hub liners, and loose

pedestal cheek liners are used for the coupled-wheel journals, which are $7\frac{1}{2}$ in. dia. \times 9 in. long. The axlebox bearings have whitemetals inserts. The journals and guide liners are lubricated from oilboxes on the platform; and the cast-iron keeps, designed for easy removal, are provided with Armstrong oilpads.

Wheel centres are of cast steel, the flanges of the intermediate and driving wheels being thinned, while those of the leading and trailing coupled wheels conform to the Nigerian Railway standard profile. Both leading and trailing trucks are of the radial-arm type with outside roller-bearing axleboxes of Skefko manufacture. The load is applied to the front truck by a spherical centre pivot, bearing on a massive steel casting riveted to the truck frames. The rear truck is of the Cole pattern. Both trucks have helical side-control springs; and many of the details, including wheels, axles, and axleboxes, are interchangeable for both trucks.

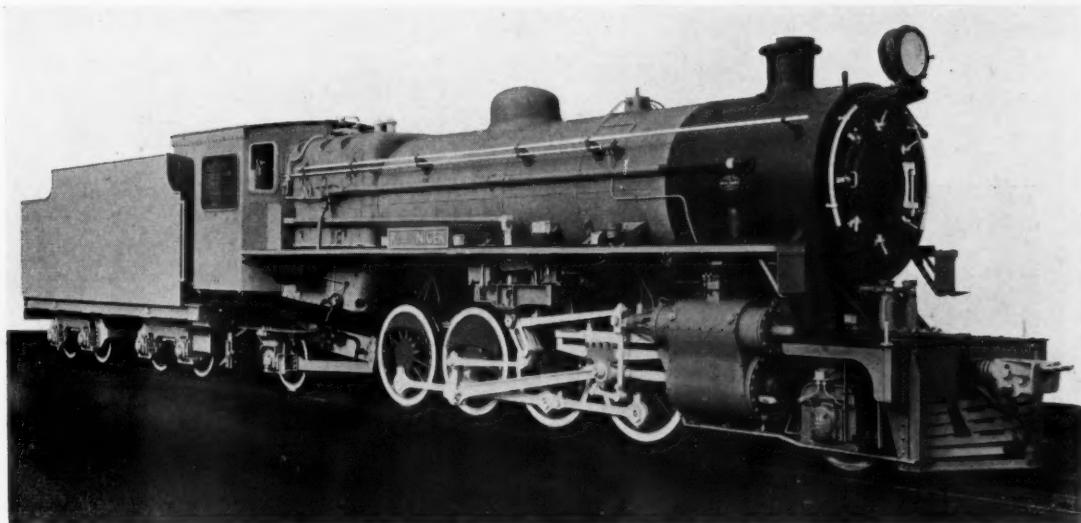
The cylinders are of cast iron, each cylinder being cast integral with half the smokebox saddle. Both cylinder barrels and steam-chests are fitted with cast-iron

liners. The cylinder diameter is 18 in. and the stroke 26 in.

The inside-admission piston valves, 10 in. in dia., have four narrow rings per head; they are actuated by Walschaerts valve gear giving a maximum travel of $6\frac{1}{8}$ in. in full forward gear, and a port opening of $1\frac{1}{2}$ in. The lap is $1\frac{1}{8}$ in., the width of port $1\frac{1}{2}$ in., the exhaust clearance $\frac{1}{8}$ in., and the lead $\frac{1}{4}$ in. Screw reversing gear is fitted on the right-hand side of the engine, the reversing screw bracket being carried on lugs welded to the firebox wrapper.

Cast-steel hind cylinder covers are fitted; and the 3½-in. dia. piston rods are provided with United States metallic packing. Front cylinder covers, and both front and hind steam-chest covers, are cast iron; the latter have circular bronze bushes for the valve spindle guides. In designing the cylinders, great care has been taken to ensure free and easy flow for live and exhaust steam, the passages for which are of generous proportions.

Cast-steel crossheads, of the Laird type, are fitted with cast-iron slippers lined with whitemetals. Felt wipers are fitted at the front and rear of the crosshead slippers to keep the slidebars clear of sand and grit when running. The connecting rods, 8 ft. between centres, drive the third pair of coupled wheels. Floating bushes of phosphor bronze are provided for the



One of the new 2-8-2 locomotives built by Vulcan Foundry Limited for the Nigerian Railway

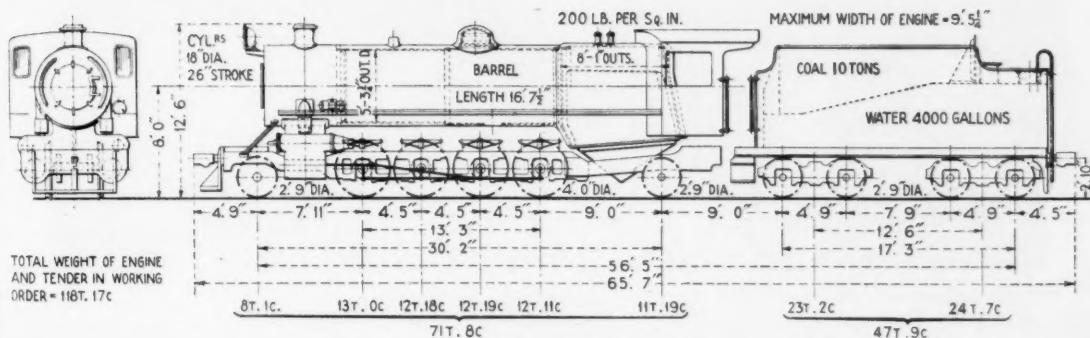


Diagram showing principal dimensions and weights

large end of the connecting rod and for the coupling rods; the small end of the connecting rod has a fixed bush, also of phosphor bronze. All these bushes have oil lubrication.

The Boiler and Boiler Fittings

The boiler has a Belpaire firebox, with steel inner box, and is of generous capacity, with a barrel consisting of two rings 5 ft. 2½ in. minimum inside dia. The distance between tube plates is 16 ft. 4½ in. The wash-out and inspection doors are a type in which the door fits on a flat-faced seating welded into the boiler, so that all the doors are interchangeable and all joints are made on a flat surface.

The firedoor is the inward-opening pattern, of cast steel. Three arch tubes are fitted in the firebox, cleaning facilities for which are provided by Housley type plugs in the throat and back plates. The firegrate is of the Hulson tuyère type, of ample area to suit the low calorific value of the Nigerian "Udi" coal, which is only 11,350 B.Th.U. per lb. The single-hopper ashpan has fixed air-openings along each side below the foundation ring. A smokebox with self-cleaning plates of the American pattern is provided. Both boiler and firebox are lagged with blue asbestos mattresses 1 in. thick.

Boiler fittings include two 3-in. dia. Ross "pop" safety valves; two No. 9 Gresham & Craven non-lifting injectors (both under the driving platform on the left-hand side of the engine and delivering to clackboxes on the same side of the

front barrel ring); one 1½-in. "Everlasting" blow-off cock; and two Klinger reflex water-gauges.

Two steam turrets are provided, one between the chimney and the dome, supplying steam to the turbo-generator, blower, and mechanical-lubricator atomiser; and the other fixed on top of the firebox, within a recess in the cab front, supplying steam to the injectors, vacuum ejector, whistle, and steam sanding valve. The sanding equipment is supplied by Gresham & Craven Limited. Electric lighting equipment is fitted, manufactured by J. Stone & Co. Ltd.

A steam brake is provided for the engine and vacuum equipment for the train, the latter being of a new type designed by the Vacuum Brake Co. Ltd. to the Crown Agents' requirements. In this new pattern, the ejector and control valve are made as separate units so that the ejector can be mounted outside the cab, thus making more room and comfort for the driver, by keeping the hot ejector out of his way.

Standard N.R. pattern drawbars and "A.B.C." couplers are provided at the front of the engine and rear of the tender.

Tender Construction

The tender tank is all-welded construction, except for the internal stays, which are riveted to bars and angles welded to the tank plates. Tender frames are built-up from channels, joists, and plates, braced by plates and castings, and riveted together. The plate-frame bogies have

wheels, axles, and axleboxes interchangeable with the engine trucks.

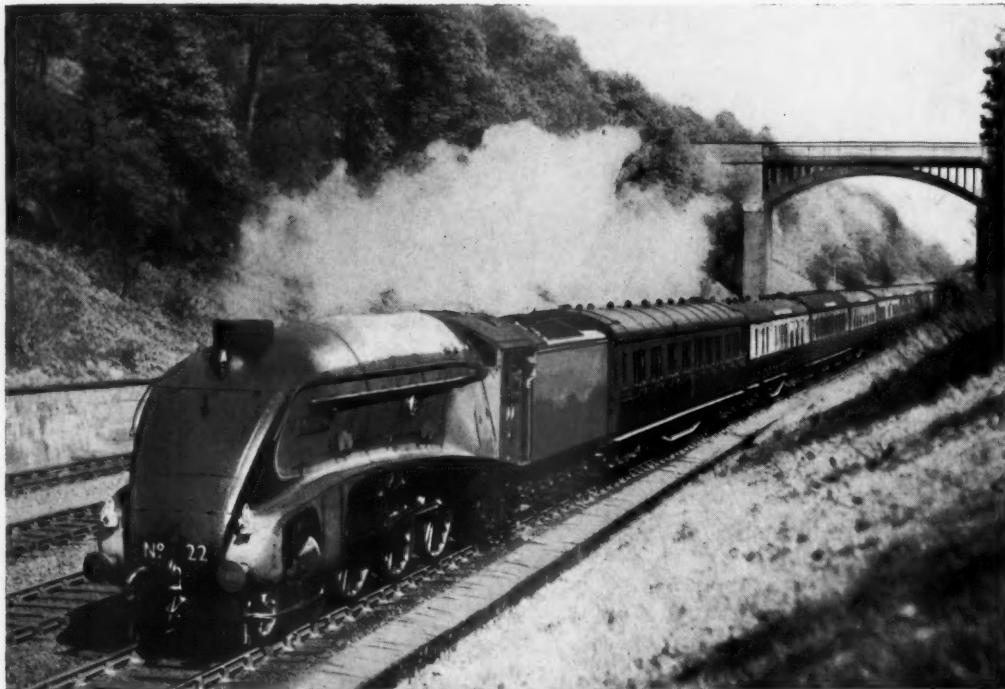
Specification

The principal dimensions of the new locomotive are as follow:

| | |
|--|---------------------|
| Gauge | 3 ft. 6 in. |
| Cylinders, dia. × stroke | 18 in. × 26 in. |
| Driving wheels, dia. | 4 ft. |
| Leading, trailing truck, and tender wheels, dia. | 2 ft. 9 in. |
| Coupled wheelbase | 13 ft. 3 in. |
| Total engine wheelbase | 30 ft. 2 in. |
| Boiler barrel, internal dia. (min.) | 5 ft. 2½ in. |
| " length | 16 ft. 7½ in. |
| Length between tubeplates | 16 ft. 4½ in. |
| Height of centre line above rails | 8 ft. |
| Heating surface : | |
| 125 tubes, 2 in. ext. dia. | 1,072 sq. ft. |
| 28 flues, 5½ in. ext. dia. | 660 sq. ft. |
| 3 arch tubes | 17 sq. ft. |
| Firebox | 146 sq. ft. |
| Total evaporative surface | 1,895 sq. ft. |
| Superheater (28 elements, 1½ in. ext. dia.), inside surface area | 489 sq. ft. |
| Combined heating surface | 2,384 sq. ft. |
| Grate area | 38 sq. ft. |
| Working pressure | 200 lb. per sq. in. |
| Tractive effort at 85 per cent. boiler pressure | 29,800 lb. |
| Adhesive weight | 51,425 tons |
| Adhesion factor | 3.86 |
| Total water capacity of tender | 4,000 gal. |
| , fuel capacity of tender | 10 tons |
| Weight of engine in working order | 71 tons 8 cwt. |
| " tender in working order | 47 tons 9 cwt. |
| " empty | 19 tons 19 cwt. |
| engine and tender in working order | 118 tons 17 cwt. |

The engines and tenders are being transported by road to Gladstone Dock, Liverpool, whence they will be shipped in one consignment by Belships Co. Ltd. to the Port of Apapa in Nigeria.

The "Mallard" on Locomotive Exchange Trials



The locomotive "Mallard," No. 22, which gained the world speed record for steam traction on the L.N.E.R. line between Grantham and Peterborough on July 3, 1938, hauling the 1.30 p.m. Paddington-Penzance train through the Sonning cutting, near Reading, Western Region

Photo]

[M. W. Earley

Unbroken Main-Line Crossing for Catch Points

Improved design for eliminating wear on heavily-trafficked crossings

NO railway administration in the world has given greater attention than London Transport to the provision of continuous rail. On plain line sections, this has been achieved to a considerable extent by the extensive use of long rails, of welding, and of machined joints. There must always be the break in the running rail in connection with point-and-crossing work, but the London Transport engineers recently decided that it was worth while experimenting with the elimination of this break in those cases where the turnout leads only to sand-drags. There is a large number of sites on the London Transport railways where catch points leading to sand-drags are provided to protect converging junctions, but obviously these are used in an emergency only, by a train which over-runs the signal, a very rare occurrence. Nevertheless, every vehicle which passes over the through road receives a jolt at the crossing because the coning of the tread allows a wheel to drop $\frac{1}{6}$ in. as it passes across the wing

rail to the point rail. There are places on the system where 28 wheels pass over a sand-drag crossing every three minutes during peak traffic periods. The special crossing which has been designed and tested, and of which several have now been installed, is shown in the two photographs we reproduce.

The principle of the design is that the through line rail is continuous through the crossing. It is a piece of standard rail, but is held in the centre of its length by special chairs. No check rail is then required on the opposite rail of the through line. For the sand-drag line, the wing rail is ramped to lift a passing wheel so that its flange passes over the head of the through rail. A falling ramp is fixed to the splice rail to allow the wheel to return smoothly to its normal level. The resulting tipping given to a vehicle is unimportant, as the vehicle should not be there, and unless it stops very quickly it will, in any case, run into the sand-drag.

The advantages of this unbroken crossing

are: (a) elimination of wear on the wing rail and nose of a normal crossing, resulting in much longer life; (b) elimination of the jolt as every wheel passes over a normal crossing, with reduction in wear on rolling stock; (c) reduction of maintenance packing of the crossing; and (d) elimination of one crossing check rail. This same type of crossing may be used in turn-outs to sidings which are little used.



Details of the raised wing rail and ramp



One of the new crossings on the surface lines of London Transport. An unbroken run is provided for traffic on the main line, but vehicles entering the siding pass over the ramp

PUBLICISING C.I.E. DEVELOPMENTS.—Two illustrated folders describing new equipment in popular terms have been issued by C.I.E. (Irish Transport Company). Both have cover designs in colour. One of the folders deals with the new diesel-electric shunting locomotive, and gives brief outline of the characteristics of diesel-electric traction in comparison with the steam locomotive. The second folder describes a new single-deck bus under construction for C.I.E. services, and

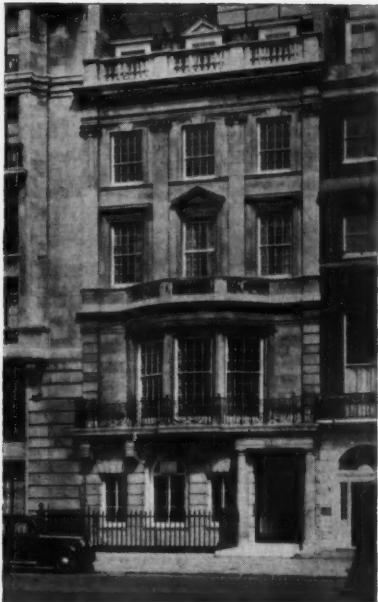
calls attention also to other developments in C.I.E. road vehicles. Both folders were produced for the Dublin Spring Show.

TREATMENT OF WATER FOR MARINE BOILERS.—British Standard No. 1170 (Treatment of Water for Marine Boilers) has been issued, and copies can be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 10s. 6d., post free.

U.S. FUNDS FOR CHINESE RAILWAY RESTORATION.—A Reuters report from Shanghai forecasts priority for rehabilitation of the Canton-Hankow Railway in the work to be financed from the \$460 million provided for China by the U.S.A. Foreign Aid Bill. Progress in post-war repairs of this system, which was damaged seriously in the Sino-Japanese war, was recorded in our July 4, 1947, issue, but it still urgently needs new permanent way sleepers, box wagons, and coaches.

Institute of Transport Portland Place Headquarters

(See news article on page 554)



Exterior of 80, Portland Place, the new London headquarters of the Institute



View of the conference suite, consisting of council and committee rooms panelled in Louis XV style



The common room on the ground floor of the building, with its French Gothic fireplace. The room looks out on Portland Place



A white marble staircase leads from the hall to the upper floors

RAILWAY NEWS SECTION

PERSONAL

The Minister of Fuel & Power has appointed Sir Robert Burrows to be a member of the National Coal Board. Sir Robert Burrows will serve in a part-time capacity, and, at his own request, will receive no remuneration. He was formerly Chairman of Lancashire Associated Collieries Limited, and Manchester Collieries Limited, and was Chairman of the London Midland & Scottish Railway Company from 1946.

Mr. N. S. Sen, M.A., M.Inst.T., who was last year appointed General Manager of the Bombay, Baroda & Central India

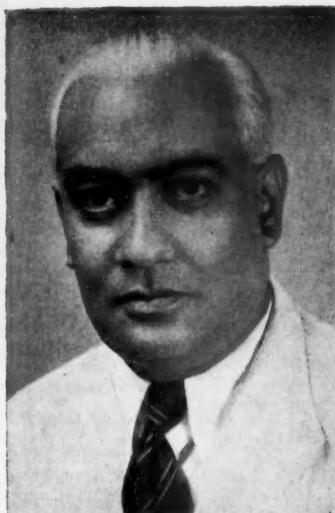
Lt-General the Hon. Sir A. Richard Montagu-Stuart-Wortley has resigned the appointment of Honorary Colonel, Engineer & Railway Staff Corps, R.E. (T.A.).

Mr. George E. Cowie, General Freight Agent, London, Canadian National Railways, retired on April 30. Mr. William Taylor, hitherto General Agent, Antwerp, succeeds him.

Mr. M. G. J. McHaffie, M.I.C.E., M.Inst.T., who, as recorded in our April 30 issue, has retired from the position of Docks Engineer, Southern Region, British Railways, has during his service in the Docks Engineer's Department been asso-

Chairman; Sir Stanford Cooper, Director, to be Vice-Chairman; Sir Patrick Hennessy, Director & General Manager, to be Managing Director.

Mr. A. C. Lisle, O.B.E., M.Inst.T., who has been appointed Area Waterways Manager, Western Area, Docks & Inland Waterways Executive, has hitherto been General Manager & Secretary, Sharpness Docks & Gloucester & Birmingham Navigation Company. Mr. Lisle was born in 1898, and was educated at King's School, Macclesfield. During the 1914-18 war he saw service in France and Belgium with the Liverpool Scottish and subsequently with the Cheshire Regiment, in which he



Mr. N. S. Sen

Appointed General Manager, Bombay, Baroda & Central India Railway



Mr. M. G. J. McHaffie

Docks Engineer, Southern Railway, and Southern Region, British Railways, 1936-48



Mr. A. C. Lisle

Appointed Western Area Waterways Manager, Docks & Inland Waterways Executive

Railway, commenced his railway career as a Probationary Assistant Transportation Superintendent on the Great Indian Peninsula Railway in 1917; he was one of the first two Indians appointed direct to the Superior Service of the G.I.P.R. He went through the grade of Assistant Transportation Superintendent, Junior and Senior Scale, and worked at several divisional headquarters, as well as in the head office in Bombay. In 1935 he was selected by the Railway Board to proceed on deputation to New York as Resident Manager, Indian State Railways Publicity Bureau, U.S.A., where he served for two years. On his return to India he was posted as Divisional Transportation Superintendent, G.I.P.R., and early in 1940 was made Deputy Chief Transportation Superintendent, Bombay; during the first four years of the war he was in charge of all troop movements on that railway. In 1944 he officiated as Chief Transportation Superintendent for eight months. In September, 1944, he was selected by the Railway Board to be Director, Traffic, which post he relinquished at the end of 1945. From February, 1946, until his present appointment Mr. Sen was Chief Transportation Superintendent, G.I.P.R.

Mr. P. N. Gray, Traffic Manager, Aldershot & District Traction Co. Ltd., has been appointed General Manager in succession to Mr. J. B. Parker, retired.

ciated with practically all the development of the docks at Southampton since the London & South Western Railway began its programme of extensions after acquiring the undertaking. After his early work in the department, Mr. McHaffie was in 1907 temporarily transferred to the Chief Engineer's Department, and was engaged on the construction of the locomotive works and offices at Eastleigh. On returning to Southampton he was associated with further developments then in hand, including the Ocean Dock, and the widening of the Trafalgar Graving Dock. After service with the Royal Engineers during the 1914-18 war he returned to the L.S.W.R., and subsequently was Resident Engineer in charge of the design and construction of the new docks at Southampton under Mr. F. E. Wentworth-Sheilds, whom he succeeded as Docks Engineer, Southern Railway, in 1936. Mr. McHaffie has been a Member of Council of the Institution of Civil Engineers for five years, and is this year's President of the British Section of the Société des Ingénieurs Civils de France. He holds the rank of Colonel, Engineer & Railway Staff Corps, R.E. (T.A.).

Lord Perry is resigning the Chairmanship of the Ford Motor Co. Ltd., remaining a Director, and the following appointments are announced:—Lord Airedale, Deputy-Chairman, to be Chairman; Sir Rowland Smith, Managing Director, to be Deputy-

held commissioned rank; he was mentioned in dispatches. After more than ten years' experience of ports and waterways in Belgium and Holland, he went to Gloucester in 1931 as Secretary to the Port of Gloucester undertaking; he was appointed General Manager in 1940 and last year was elected a Director of the company. He was elected a Director of the Severn Carrying Co. Ltd. in 1940. During the recent war Mr. Lisle was Chairman of the South-West Regional Canal Committee, and of the South-West Regional Joint Industrial Council for the Inland Waterway Industry, and Deputy-Chairman & Executive Officer of the Port Emergency Committee. He has been Chairman of the Gloucester Group of the Institute of Transport for the past three years. He was made an O.B.E. in the King's Birthday Honours, 1946.

Mr. P. Holt, who, as recorded in our March 19 issue, has been appointed Statistical Assistant to Chief Financial Officer, Railway Executive, joined the Lancashire & Yorkshire Railway in 1899, and after twelve years experience in the Traffic Department, and after studying railway subjects at Manchester University, was attached to the Staff Section of the Chief Traffic Manager's Office. He was a member of the L.Y.R. General Manager's Statistical Office on its formation in 1912, and continued to serve under the L.M.S.R.

**Mr. P. Holt**

Appointed Statistical Assistant to Chief Financial Officer, Railway Executive

**Mr. R. W. Bailey**

Appointed Technical, Workshop & Maintenance Staff Assistant to Chief Officer (Staff & Establishment), Railway Executive

**Mr. C. H. Brazier**

Appointed Wages Staff Assistant to Chief Officer (Staff & Establishment), Railway Executive

General Manager after the 1923 amalgamation until the re-organisation of the duties of that office in 1927. In 1930 the Headquarters Statistical Section of the L.M.S.R. was transferred to the Chief Accountant's Department at Euston, and Mr. Holt has retained his association with that work during the past eighteen years. He was appointed Secretary of the R.E.C. Statistical Committee in 1938, and held that position up to the time of his recent appointment with the Railway Executive.

Mr. R. W. Bailey, T.D., M.Eng., A.M.I.C.E., A.M.I.I.A., who, as recorded in our March 19 issue, has been appointed Technical, Workshop & Maintenance Staff Assistant to Chief Officer (Staff & Establishment), Railway Executive, was educated at Wade Deacon Grammar School, Widnes, and at Liverpool University, where he was a Bartlett Scholar. From 1922 to 1924 he was a pupil of Mr. A. P. Ross, then Engi-

neer to the Cheshire Lines Committee (later Chief Stores Superintendent, L.N.E.R.). In 1925 Mr. Bailey was appointed Assistant Works Manager at the Warrington Works of the Cheshire Lines Committee, and in 1932 became Works Manager & Outside Assistant to the Engineer to the C.L.C. In 1937 he was appointed Assistant to District Engineer, Manchester District, L.M.S.R. Mr. Bailey was largely concerned with development at the Newton Heath shops of the company. In 1939 he was embodied with the Royal Signals (Territorial Army), commanding the 2/55th Divisional Signals, and in 1940 proceeded overseas. He commanded the 4th L. of C. Signals during the first Western Desert campaign, and participated in the first siege of Tobruk. From 1941 to 1945 he was Chief Signal Officer, Suez Canal Area, Alexandria, Basra, and to the Allied Military Liaison H.Q. to Greece. He participated in the

Greek revolt, 1944. He was mentioned in despatches. In 1945 Mr. Bailey was appointed District Engineer, Perth, L.M.S.R.; and in 1946 he became Assistant (Staff & Organisation) to Chief Engineer, Watford Headquarters, L.M.S.R. Mr. Bailey was for many years lecturer in engineering subjects at the Widnes Municipal Technical College.

Mr. C. H. Brazier, who, as recorded in our March 19 issue, has been appointed Wages Staff Assistant to Chief Officer (Staff & Establishment), Railway Executive, was educated at Exeter Episcopal School, and joined the L.S.W.R. in 1913 as a junior clerk. After station experience he was transferred to the London West Divisional Superintendent's Office. He served in the Railway Operating Division, R.E., during the 1914-18 war. From 1928 to 1936 he was Outdoor Staff Investigator attached to the headquarters of the Traffic

**Mr. A. G. Tindill**

Appointed Administrative Assistant to Chief Officer (Motive Power), Railway Executive

**Mr. M. S. Hatchell**

Appointed Principal Assistant (Locomotives) to C.M.E., L.M. Region, British Railways

**Mr. G. F. Horne**

Appointed District Locomotive Superintendent, Newton Heath, L.M. Region, British Railways

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Department, Southern Railway, relinquishing that position on appointment as Staff Assistant to the Docks & Marine Manager, Southampton. He was appointed Outdoor Superintendent at Southampton Docks in January, 1940, and returned to the Traffic Department in 1941; he was appointed Staff Assistant to the Traffic Manager in 1942, which position he held until taking up his present appointment. Mr. Brazier was a member of all the sectional councils representing operating, commercial, Continental and motive power staff on the Southern Railway, and Chairman of many sectional council sub-committees.

Mr. Alan Guy Tindill, who, as recorded in our March 19 issue, has been appointed Administrative Assistant to Chief Officer (Motive Power), Railway Executive, commenced his railway career with the N.E.R. in 1904 in the Passenger Department at Frickley (Swinton and Knottingley joint line). After experience in passenger, goods, operating and statistics work he was in 1924 appointed Head of Trains Section, Locomotive Running Superintendent's Department, North Eastern Area, L.N.E.R., at York. He was transferred to London (Liverpool Street) in 1938 to be Head of Trains Section, Locomotive Running Superintendent's Department, Southern Area. On the inauguration of the L.N.E.R. Central Traffic Office at Marylebone in August, 1942, Mr. Tindill was appointed Assistant Traffic Officer, becoming Principal Assistant (Operating) and Head of the Central Traffic Office in October, 1945. During the 1914-18 war he served in France and Belgium with the Northumberland Fusiliers, attaining the rank of Captain; and during the recent war as a Lieutenant, 5th Essex Battalion, Home Guard.

Mr. M. S. Hatchell, A.M.I.Mech.E., M.I.Loco.E., Assistant to Chief Mechanical Engineer, Brighton, Southern Region, British Railways, who, as recorded in our March 19 issue, has been appointed Principal Assistant (Locomotives) to Chief Mechanical Engineer, Derby, London Midland Region, was educated at Haileybury College, and began his engineering career as a pupil under Mr. L. B. Billinton at Brighton Locomotive Works, L.B.S.C.R. After undertaking inspection duties as an assistant to Mr. R. E. L. Maunsell, he was appointed Assistant to the Works Manager at Eastleigh Locomotive Works, Southern Railway, in 1928, and in 1938 was transferred to Ashford as Assistant Works Manager. In 1941 he became Carriage & Wagon Works Manager, Eastleigh, and later was seconded for liaison duties in connection with war work being undertaken by the railway company. Mr. Hatchell was appointed Works Manager, Ashford, in 1942, and Assistant to Chief Mechanical Engineer, Brighton, in 1946.

Mr. G. F. Horne, M.I.Loco.E., District Locomotive Superintendent, Toton, London Midland Region, British Railways, who, as recorded in our March 19 issue, has been appointed District Locomotive Superintendent, Newton Heath, served an apprenticeship at the Horwich Locomotive Works of the Lancashire & Yorkshire Railway, and received technical education at Horwich Railway Mechanics Institute. He subsequently went to the running sheds at Bolton and Fleetwood, and later transferred to the Marine Department, Goole, as Second Engineer. Mr. Horne joined the Royal Engineers in September, 1914, as a

sapper, and was later commissioned, serving until March, 1919. He then returned to railway service in the Locomotive Running Head Office, Horwich, and he has held subsequent appointments as Shed Foreman at Southport, Mirfield and Low Moor, Assistant District Locomotive Superintendent at Newton Heath, and District Locomotive Superintendent at Bank Hall and at Toton. He has served on the committees of the Leeds, Manchester and Derby Centres of the Institution of Locomotive Engineers.

We regret to record the death on May 2, at the age of 77, of Mr. John Frederick Lean, O.B.E., who retired in 1936 from the position of Principal Assistant to General Manager, Great Western Railway. The funeral service is being held today (May 7) at St. Columb Minor Parish Church, Newquay, Cornwall, at 11.15 a.m., to be followed by cremation at Efford, Plymouth, at 3 p.m.

The late Sir Thomas Somerset, who was Chairman of the Northern Counties Committee, L.M.S.R., left (personal estate in England and Northern Ireland) £124,449.

SOUTHERN REGION APPOINTMENTS

The following appointments have been made in the Southern Region, British Railways:

Mr. F. R. Stockdill to be Accountant, vice Mr. W. J. Sawkins, retired.

Mr. L. J. Boucher to be Signal & Telecommunications Engineer.

Mr. Keith R. Shrewsbury, Publicity Manager of Thos. Cook & Son Ltd., is retiring, after 40 years service. Mr. W. D. C. Cormack, Assistant Publicity Manager, has been appointed Publicity Manager.

Mr. J. Noel Phillipps, who was Operating Manager, Scotland, L.M.S.R., until December 31, 1947, and has since been Assistant Operating Superintendent, Scottish Region, retired on April 30. Mr. Phillipps intended to retire on December 31 last, but agreed to remain in the railway service for a few months during the transition period.

INDIAN RAILWAY STAFF CHANGES

Mr. P. C. Mukerjee, Divisional Superintendent, East India Railway, has been appointed to officiate as General Manager, Bengal Nagpur Railway, in place of Mr. S. J. P. Cambridge, on leave preparatory to retirement.

Mr. B. Arora has been appointed Director, Traffic, Railway Board, in place of Mr. A. A. Brown, who has proceeded on 8 months leave.

Mr. D. B. Patel, Deputy Secretary, Railway Board, has been appointed Joint Director, Establishment, Railway Board, in place of Mr. M. E. Bartley, proceeding on leave.

NATIONAL ROAD TRANSPORT FEDERATION

At the recent annual meeting of the National Road Transport Federation, Colonel A. Jerrett was elected Chairman, in place of Mr. H. T. Dutfield, who has resigned in consequence of his appointment to the Road Transport Executive, British Transport Commission. Mr. B. G. Turner (Chairman, Road Haulage Association) and Mr. F. J. Speight (immediate past-Chairman, Passenger Vehicle Operators' Association) were elected Vice-Chairmen. Mr. Dutfield was elected a Vice-President in recognition of his service to the Federation as Chairman during the

past three years. Lord Woolton is the President, and the remaining Vice-Presidents are Major H. E. Crawfurd, Mr. W. J. Elliott, Sir John MacDonald, Mr. J. Paterson, Mr. D. Richardson, Major R. A. B. Smith. In view of his appointment as Secretary & Legal Adviser to the Road Transport Executive, Mr. G. W. Quic Smith has relinquished his post as Secretary of the Federation; for the time being, Mr. F. D. Fitz Gerald (Secretary of the Traders' Road Transport Association) is undertaking the secretarial duties as Acting Secretary.

Mr. Mungo Campbell has been elected President of the North East Coast Institution of Engineers & Shipbuilders.

We regret to record the death of Sir Herbert Hudd, K.B.E., M.C., a former Minister of Railways in South Australia, aged 67.

Mr. I. Wild has been appointed Director of Finance, Ministry of Transport, with the rank of Under Secretary, to succeed Mr. F. J. Orchin, who is retiring on May 31.

Mr. J. J. Butler will retire on June 1 after 27 years as Secretary of the North Western Region of the Federation of British Industries. His successor will be Mr. G. C. Allen.

On the retirement of the Secretary & Chief Accountant, Mr. E. C. Drake, Guest, Keen & Nettlefolds Limited has appointed Mr. W. A. Nicol as Secretary, and Mr. W. W. Fea as Chief Accountant.

Mr. W. D. Chapman, Director of Civil Engineering, Australian Commonwealth Transport Department, has been appointed Chairman of a board of inquiry to investigate the system of administration, control and finances of the Tasmania Government Railways.

Mr. W. J. Boddy, Manager of the Electrical Construction Department of the British Thomson-Houston Co. Ltd. since 1918, has retired after 51 years' service with the company. Mr. A. S. Kettle has been appointed Manager, Construction Department, which consolidated department will now carry out all electrical, turbine, and traction construction work.

EAST AFRICAN RAILWAYS & HARBOURS

On the amalgamation of the Kenya & Uganda Railways & Harbours and the Tanganyika Railways & Ports Services into one system, the East African Railways & Harbours Administration (see also editorial note), Mr. A. Dalton (formerly Superintendent of the Line, Kenya & Uganda Railways & Harbours, and from January 1, 1948, Acting General Manager of that Administration) has been appointed Acting General Manager of the East African Railways & Harbours, and Mr. J. R. Farquharson (who until recently was General Manager of the Tanganyika Railways & Ports Services) has been appointed Acting Deputy General Manager. For the time being, Mr. Farquharson will remain in Tanganyika, until re-organisation schemes are complete. The direction of the combined transport system is in the hands of the East Africa High Commission and comes under the purview of the Central Assembly. The officer of the High Commission staff responsible for carrying out the transport policy of the High Commission is the Commissioner for Transports, Sir Reginald Robins.

New Institute of Transport Headquarters

Opening of premises at Portland Place

Mr. T. W. Royle, President of the Institute of Transport, formally opened the Institute's new premises at 80, Portland Place, London, W.I., on April 30. On arrival he was received by Mr. Gilbert S. Szlumper, Chairman of the Premises Committee; Mr. S. Kennedy, Honorary Treasurer and Chairman of the Finance & Establishment Committee; Mr. Howard Lobb, F.R.I.B.A., the Architect; Mr. A. Robertson, the contractor's foreman; and Mr. F. W. Crews, Secretary of the Institute. Mr. Lobb handed the President an inscribed key, with which he opened the entrance gates, and then conducted members and visitors to the first floor, where he declared the building open.

In his speech, Mr. Royle said that since the inauguration of the Institute in 1920 they had gone from strength to strength. Their membership continued to increase, and they had now reached the gratifying position of having headquarters of their own. That this ambition should be achieved during his year of office as President made him a very proud man, and he was deeply sensible of the honour the Council had bestowed on him by asking him officially to open the premises.

Growth of the Institute

Mr. Royle said he well remembered their first annual report, which showed a membership of 652, and it was a source of satisfaction to them all that that figure now had passed the 8,000 mark, and that at next month's examinations for graduation and associate membership, some 1,200 candidates would be presenting themselves. This gathering was the culmination of work which had been in progress for a long time, and he would be failing in his duty if he did not use the occasion to express the Institute's thanks to those who had been principally concerned.

It was Mr. J. S. Nicholl, during his presidency of the Institute, who first drew attention to the need for action to deal with the problem of accommodation. Sir William Wood, the next President, continued to impress on members the importance of the subject, and Mr. R. Kelso who succeeded Sir William Wood, took the first step by calling for a report from the Secretary and putting the whole matter to the Council for discussion.

Raising the Funds

A small committee was appointed to attend to the routine of an appeal for funds and to find the premises. It comprised, in addition to the President, Mr. Gilbert Szlumper as Chairman, Mr. J. S. Nicholl, Mr. C. J. Selway, and Mr. S. Kennedy. Mr. Selway had retired at the beginning of the present Institute year, when Sir William Wood accepted service, together with Sir Frederick Handley Page and Mr. Pilcher. Mr. Royle said that words failed him adequately to describe the inspiration which Sir Frederick Handley Page had been to them, and the untiring work he had put in. Without his leadership and extraordinary ability to raise funds, they would not have been meeting that day in such a magnificent centre for their work. He then formally admitted Sir Frederick to honorary membership of the Institute of Transport.

Mr. Royle offered the warm thanks of the Institute to Mr. Howard Lobb, under whose supervision the work of adapting the building had been carried out, and to Messrs. Ball & Partners, the quantity

surveyors. They appreciated, too, the work of the contractor and sub-contractors, and welcomed the presence of Mr. Lester, of William Moss & Sons Limited, and Mr. Robertson, the General Foreman.

Now, they had their own building officially opened and ready for work. It remained for their members to make it a vital centre of service to the cause of good transport. It was not enough for them to be pleased with this handsome headquarters. They must use it and develop it to the utmost, for the promotion of education, research, and discussion. He trusted it would evoke feelings of pride in their calling and in the Institute, among those who came there, and that, above all, it would be a friendly place where members might meet and exchange ideas and information for their good and for the national good.

Their Endowment Fund had been created not only to acquire their own premises but to extend and apply more adequately the objects of the Institute. The funds now had passed £64,000, but were behind their target of £100,000, and the present figure could and must be increased over the next year or two. He commended the needs of the Institute to all who were seeking a worthy home for their munificence, and begged their friends to be untiring in their efforts on behalf of the Institute, which efforts, he was pleased to say, had the good will of the British Transport Commission.

They were more indebted than he could say to all those benefactors who had given so generously to their cause. Their names would appear in the list which was to be published shortly. They had made possible this important step in the development of the Institute and would be remembered gratefully. Let members be worthy of their confidence.

History of the Building

Mr. Howard Lobb, F.R.I.B.A., the architect, described the history of Portland Place and enumerated some of its many distinguished residents in the past. The house now occupied by the Institute had been rebuilt in 1905, and in the past had been occupied by Baron Grimthorpe, Sir William Peterson, Admiral Lord Jellicoe, and Mr. Mark Ostrer. The building was damaged by incendiary bombs on October 15, 1940, and in 1944 was requisitioned by the Ministry of Works for broadcasting studios for the American Forces Network.

The building has a cream-painted entrance hall, communicating with the common room, library reference room, and library. A white marble staircase with wrought iron balustrade gives access to the council and committee rooms, panelled in Louis XV style, on the first floor, with the Secretary's offices nearby. On the second floor are the Institute's offices, while the remaining two floors have been converted into two flats. The common room has a French Gothic fireplace and oak linenefold paneling to the door. In the library reference room the fireplace is of white marble in 18th Century style, and the bookcases are of mahogany. The library proper retains the original features of the room, including an Italian Renaissance fireplace and a beamed oak ceiling.

The general contractor for the work was William Moss & Sons Limited. The heating and hot water systems have been re-

constituted by Rosser & Russell Limited, and Troughton & Young Limited has rewired the electrical installation and provided new light fittings.

Among those who attended the opening were:

Past-Presidents: Lord Ashfield, Sir Cyril Hurcomb, Sir William Wood; Messrs. R. Kelso, J. S. Nicholl, R. Stuart Pilcher, Gilbert S. Szlumper.

Vice-Presidents: Messrs. V. M. Barrington Ward, S. R. Geary, J. S. Wills.

Former Vice-Presidents: Sir Eustace Missenden, Sir Alan Mount; Messrs. L. W. Dupwell, R. J. Howley, James Paterson.

Members of Council: Messrs. David Blew, J. W. S. Brancier, H. P. Dutfield, Harold Elliot, W. S. Graff, Baker, H. Hagland, D. H. Handover, P. M. Hill, S. G. Hearn, C. F. Klapper, G. Leedam, A. B. MacLeod, A. J. Pearson, H. Rudgard, A. Watson, J. O. Wood.

Officers of local sections: Messrs. A. L. Castlemain, H. C. Crane, W. J. Evans, R. A. Hardy, H. Hodson, C. J. Hurst, C. F. King, H. Mann, R. C. Moore, E. Phillips, P. Pike, G. H. Seale, G. F. Sinclair, A. J. Wright.

Honorary Treasurer of the Institute: Mr. S. Kennedy.

Visitors: Colonel H. I. Davidson; Messrs. P. Good (President, Institution of Electrical Engineers), J. A. Kay (The Railway Gazette), D. R. Lane (Modern Transport), F. R. Walton (Ministry of Transport), A. Winter-Grey (formerly Secretary of the Institute of Transport).

Railway Improvements at Genoa

Various modifications of the railway system converging on Genoa, some of them designed to improve connections between the port area and the lines to the North, have been completed in recent months, while others are still in hand. The total expenditure involved so far amounts to 10,000 million lire (about £7,142,850 at the present rate of exchange), and a further outlay of half that sum is envisaged. At Genoa Principe Station a retaining wall has been demolished and a new one erected in such a position as to obtain the space necessary for two more tracks, thus considerably easing the former bottleneck at this station.

In connection with these facilities, a new tunnel was built parallel with the existing one between the Principe and Brigole Stations. By this new tunnel, the main line between the principal stations of Genoa had been quadrupled and its capacity correspondingly increased.

Other improvements already completed or nearing completion have provided more convenient connections between the western port area and the Giovi main line to the North, avoiding the congested marshalling yards of Sampierdarena; and also a direct link from the Principe Station to the Giovi line, again avoiding Sampierdarena. This relief line runs through a new tunnel, 7,478 ft. long, and includes a viaduct of 24 arches, with a total length of 3,116 ft.

Other work comprises the widening and modernisation of the Sampierdarena marshalling yard, and completion of the Giovi line. This is a relief line to the main Genoa—Sampierdarena line to the North, which it rejoins at Ronco. An extension of the Giovi line is being built that will have a separate location as far as Tortona, 42½ miles north of Genoa. The northern section of the line has been completed partly, and a connection is to be provided with the Sampierdarena—Ovada—Asti line at Ovada, thus relieving communications with Piedmont.

Finally, a ropeway for the conveyance of goods in bulk is to be built between the port of Genoa and Arcuata Scrivia Station, on the Genoa—Milan main line, 26½ miles north of Genoa, enabling goods to be conveyed direct from the holds of ships to Arcuata Scrivia for loading into goods trains. In this way, part of the heavy goods traffic from Genoa to the North will be removed from the steeply graded lines over the hills sloping down towards the city.

Automatic Switching of Teleprinters

At a meeting of the Institution of Railway Signal Engineers in London on April 21, with Mr. R. Dell, Vice-President, in the chair, in the absence of the President, Mr. A. Moss, members heard a paper by Mr. D. Shaw, Eastern Region, British Railways, on "Automatic Switching as applied to Teleprinter Working."

The paper dealt particularly with the switching exchange system applied on the former Southern Area, L.N.E.R. (described in our March 4, 1938, issue), giving reasons for the large-scale adoption of teleprinters on these lines. The disadvantages of point-to-point working were discussed, and the benefits of using switching pointed out, chief among them being the direct service between way stations, acceleration of the telegraph service by reducing re-transmission work, and the use of fewer machines and operators at the main office.

Operational procedure was described fully, with the methods used for rapid disposal of priority messages, ensuring minimum delay to others, making the maximum use of the lines, and the standard procedure followed by all operators. Reperforating and automatic sending also were described, together with a number of other details of switching methods, making a comprehensive but condensed account of the subject. Mr. Shaw had already given the paper at a meeting of the institution in Manchester.

The discussion was opened by Mr. G. H. Leversedge, who said that after nine years' experience with the installation, one could say that it had been highly successful. It had provided an efficient service at minimum operating cost, remarkably free from technical troubles, despite the use of long open-line and earth circuits. The system described was fundamentally a direct switching one, although limited means existed for storing messages on tape, transfer of the tape from the receiving reperforator to the auto-transmitter being performed manually; but an increase in traffic density would lead to consideration of the automatic routing message-storing system. There would then be no dials at the out-stations. These would merely transmit the code of the required station before telegraphing, and at the switching centre all messages would be received on tape relays, the routing code causing the tape relay to obtain access to the required line, if free, and transmit the message without delay. On completion, both lines would be released by the relay, ready to receive the next call. If the line should be engaged, the telegram would remain stored, the tape relay periodically testing the required line, and being able itself to accept further messages for the station to which the first was addressed, but no others. Storing for more than a predetermined time would be indicated by an alarm. Such equipment probably would be expensive, but justified under dense traffic.

Mr. W. J. Reynolds referred to the difficulties in getting the maximum user out of the lines, as the paper emphasised. With one line heavily loaded, it was possible to associate with it two reperforators, with change-over feature, but there were difficulties in that. The type of message had to be distinguished, and one could never be sure, when a message was stored, that it could be passed safely on without some check on it. At present there was no suitable machine for auto-control; the present type was suitable only for manual control. They hoped, however, soon to

have a method of electric control to give auto-storage.

Mr. E. E. Fidler recalled that the paper had stressed the need for expert code readers in connection with reperforating. His own people had found an answer to that before the war in their business house. Machines had been made giving a plain language message in association with the receiving perforators. With regard to using machines for invoicing, commercial firms were unable to do that in this country, but he had done it in Paris in 1939 with considerable success. When they asked for that facility here, they were told that such a service was impossible. In France he had simultaneous speech and teleprinter working, but that too, he thought, was not available here.

Mr. F. C. Hector was surprised to find that operators on the reperforator machines were not expected to be familiar with reading the tape. It might be dangerous to have no local copy, but with an operator who could read the tape and a local record, they got an office record passing through. He thought it dangerous to rely on the "answer back" mentioned in the paper, when transmitting traffic. It had been proved on more than one occasion that a message had been transmitted and an answer back had come in, but in point of fact the message had not been properly

received at the far end owing to a local mechanical fault on the carriage.

Mr. L. B. Salmon referred to the figure of 350 messages per day as justifying teleprinters, but the Post Office figure was far less. With such working, stations would be very busy most of the time, and others would have difficulty in obtaining them.

Mr. W. D. Emery dwelt on the importance of maintenance. The paper dealt with the maintenance of the teleprinters themselves, but there was the question of the switching apparatus at the exchange. The bulk of the apparatus, of course, was situated at a central point where there was good technical staff available to attend to it. He would like to know something of the troubles experienced, especially in connection with out-station apparatus.

Mr. Shaw, replying at some length to the points raised, said that the maintenance difficulties had been comparatively very small indeed; a good deal of that was due to the well-planned arrangements for servicing the machines. Some 75 per cent. of all trouble came from the lines, and about 25 per cent. from the exchange equipment; the teleprinters themselves gave very little trouble.

Mr. R. Dell moved a cordial vote of thanks to the author for his instructive paper, and announced that the ordinary meetings had now terminated. The council had under consideration a new programme, of which notice would be given as soon as practicable.

Mersey Railway Company

A general meeting of the Mersey Railway Company was held at Winchester House, Old Broad Street, London, E.C.2, on April 27, Mr. John Waddell, Chairman of the company, presiding.

The Chairman said: Under the terms of the Transport Act, 1947, the undertaking of the Mersey Railway vested as from January 1, 1948, in the British Transport Commission, and the accounts for 1947 do not require the approval of the stockholders. The Directors' Report, together with an abstract of the accounts, have been circulated to all stockholders who were on the register at December 31, 1947.

The holders of the various classes of debenture stock have received their interest payment up to December 31, 1947, and from the abridged accounts it will be observed that after meeting the debenture interest the amount available for distribution amounts to £58,316; out of this the preference stockholders will receive payment in full of their interest to December 31, 1947, leaving an amount of £38,844 available for distribution to the ordinary stockholders. This will permit payment of a dividend at the rate of 2½ per cent. and leave a small balance which, under the terms of the Act, is repayable to the British Transport Commission.

No provision is made in the Transport Act for compensation to directors for loss of office which should properly be made out of the assets which pass to the Commission; therefore the board is of the opinion that it would not be fair that any compensation should be paid to them which would have reduced the final dividends to the stockholders.

Circulars have been sent out to the stockholders asking for the return of their stock certificates so that their accounts may be transferred to the Bank of England, who are the registrars of the British Transport 3 per cent. Guaranteed Stock, 1978-1988, and stockholders will, in

due course, receive their certificates for the equivalent amount of British Transport Stock direct from the Bank of England. Up to the present, the company has transferred over 80 per cent. of the capital stocks of the company, and it is anticipated that the work will be completed at an early date.

No one regrets more the passing of the Mersey Railway than your board, but we look back with pride on the history of the company. The Incorporating Act was passed in 1866 for the construction of a railway under the River Mersey and connecting Liverpool with Birkenhead. The company had many difficulties to overcome, and it was not until 1880 that the sinking of shafts and driving an experimental tunnel was commenced. During construction many difficulties, both financial and engineering, were encountered, and it was not until February, 1886, that the first section of the railway between James Street, Liverpool, and Green Lane, Birkenhead, was opened for passenger service.

Various extensions of the railway were made subsequently on both sides of the river, and the railway as it exists today was finally completed in 1892. Its early life as a steam railway was one full of difficulties, and the affairs of the undertaking came into the hands of receivers and managers. In these circumstances, a bold policy was formed and a new board was appointed. The Act of 1900 was promoted to enable the company to change over to electric traction and further capital was created to enable the changeover to be made.

In May, 1903, the last steam train ran over the system and the electric service was inaugurated. During the last year of steam working the receipts were insufficient to meet the renewal charges and working expenses by £4,086, and the company was unable to meet the interest on its debenture

stocks. From that time the company made steady progress, and for the year 1927 made the first payment on its ordinary stock of $\frac{1}{2}$ per cent.; and since then it made slow but steady progress. In March, 1938, the through electric services on the Wirral Section were brought into being and were an immediate success.

During the war years the company carried a large amount of Service personnel and also heavy traffic to and from the various works engaged on war service. During the whole of its existence, the company has endeavoured, by studying the needs of the travelling public, to give the best possible service at the lowest possible fares.

To the staff as a whole I think you would like me to convey your thanks for the faithful services which they have rendered in the past to the Mersey Railway, and I feel sure that they will give the same loyalty and service to the British Transport Commission.

Ballot for Meeting on B. & C.D. Sale Agreement

Shareholders of the Belfast & County Down Railway are being asked if they are in favour of an extraordinary general meeting of the company to consider the proposed sale of the undertaking. Circulars have been sent out by the Stockholders' Protection Association asking if they desire such a meeting, or are satisfied with the price offered—£485,989.

This follows correspondence between the association and the directors. In a letter dated March 16 the association contended that the directors had no power to sell the railway, or to agree to any figure; and asked the directors to agree that the acceptance of the above sum at the annual general meeting (see our issues of March 12 and 19) was null and void, not binding the shareholders, or expressing the wishes of the majority of them. They also asked the directors to convene an extraordinary meeting.

In their reply dated April 2, addressed to Mr. F. R. McMaster, Chairman of the Stockholders' Protection Association, the directors said that they had not sold or purported to sell the railway, but when asked by the Government to express their views on the terms on which it was proposed to acquire it for cash, they could not decline to express them. Their views were, and are, that the proposals were fair and reasonable.

The directors, who propose no further action until authorisation by Act of Parliament, say that the proceedings at the annual meeting were regular, and decline to hold another meeting. They draw attention to the "danger of delay or obstruction which might result in serious loss to the stockholders should the Government thereby be induced to reconsider the position and decline to proceed further in the matter"; and add: "You do not seem to realise the very serious position in which the company now finds itself."

FRENCH NATIONAL RAILWAYS POSTERS.—Subsequent to the recent series of coloured posters issued by the French National Railways, eight further attractive posters, which portray such districts as the Jura, Vosges, and Auvergne, have appeared.

Questions in Parliament

Hotels Executive and Transport Consultative Committee Appointments

Mrs. B. A. Castle (Blackburn—Lab.) on April 26 asked the Minister of Transport whether, in considering further appointments to the Hotels Executive, he would bear in mind that there was a number of women with qualifications and experience in the catering field and include one of them among his appointments to that Executive.

Mrs. Leah Manning (Epping—Lab.) also asked the Minister of Transport if he had yet constituted his transport users' councils and his transport Hotels Executive; and what provision he had made for the inclusion of women on those boards.

Mr. Alfred Barnes: I hope shortly to be in a position to appoint the Hotels Executive and the Central Transport Consultative Committee for Great Britain. In making appointments to those bodies I shall consider both men and women who have the requisite qualifications and experience.

Mrs. Castle: Is the Minister aware that immediate improvements could be made in railway hotels, railway meals and catering facilities generally if women's skill, common sense and training in this respect could be brought into use? Will the Minister give an assurance that he will see that the usual prejudices do not operate in this matter to the detriment of the travelling public?

Mr. Barnes: I am very much aware of the necessity for these improvements and I can assure Mrs. Castle that I suffer from no prejudices in the direction which she has indicated.

Mrs. Florence Paton (Rushcliffe—Lab.): Is the Minister aware that in the Women's Traffic Club of Great Britain there is a number of highly skilled women executives dealing with all forms of transport, and will he pass this information to the Transport Commission so that when it is setting up its area and district organisations it can bear it in mind?

Mr. Barnes: That appears to me rather to raise the question of operation, which is another issue. Mrs. Castle's question deals with appointments, in connection with which I am responsible. I gather that the supplementary question raises the question of operation; if so, that is a matter for the Commission.

Railway Accidents

Commander T. D. Galbraith (Glasgow, Pollok—C.) on April 26 asked the Minister of Transport whether he was aware of the public concern over the number of serious railway accidents which had taken place during the last two years owing to failures of the signalling system; and whether he would take steps to ensure the adoption by the Transport Commission of adequate safety measures.

Mr. W. Teeling (Brighton—C.) asked the Minister of Transport whether he could make a statement about the railway accident caused by the pulling of a communication cord on April 17; and whether he proposed to direct the Transport Commission to make further investigations to make it possible on electrified railways as well as steam railways for following trains to be automatically stopped.

Sir Wavell Wakefield (Marylebone—C.) also asked the Minister of Transport if, in order to minimise accidents on British Railways, he would direct the Transport Commission to investigate immediately the possibility of equipping trains and control

points on the railway system with up-to-date methods of short-wave means of communication, as used by aircraft and shipping, so that train crews could communicate with each other and their control points instantaneously.

Mr. Alfred Barnes: Under the Transport Act it is the responsibility of the British Transport Commission to pay due regard to the safety of operation of the services for which it is responsible. A function of my department in the case of railway accidents is to investigate their causes and to make appropriate recommendations. I have no doubt that the Commission will attach great weight to any such recommendations, as the railway companies did in the past. With regard to the collision which occurred at Winsford on April 17, the Inspecting Officer has commenced his inquiry and has advised that the stoppage of the train by the pulling of the communication cord should not have led to an accident, but I must reserve any further statement until I have received his report. I should like to take this opportunity of expressing my sympathy with those who were injured, and with the relatives of those who were killed, in this regrettable accident. I am drawing the attention of the Commission to the suggestion made by Sir Wavell Wakefield.

Commander Galbraith: Is the Minister satisfied, as a result of the investigations, that British Railways have at their disposal a sufficient number of fully-qualified signalmen, and will he suggest to the Transport Commission the possibility of its introducing generally the safety devices which have been operated over so many years with such great success by the Great Western Railway Company?

Mr. Barnes: As I indicated in my original reply, I would rather not go further with regard to the Inspecting Officer's report until I receive that report. With regard to the introduction of any further safety devices, I would remind the House that the officers who look into these inquiries always, arising from their report, recommend any improvements in signalling or any other method that will add to the safety of the travelling public.

Mr. Teeling: Am I to understand from the Minister that now that the railways have become nationalised, the whole nation, which is very anxious about its position in regard to travelling on the railways, is not to be able to ask questions, as I have done, about particular accidents, especially with regard to the electrified railways?

Mr. Barnes: That is an extraordinary assumption, and is not justified at all by the very full answer which I have given to Members' questions—

Mr. Teeling: The Minister has not answered my question.

Mr. Barnes: Oh, yes. The nationalisation of transport has not in any way interfered with the machinery of inspection of the Ministry of Transport into any accident of this character. With reference to the specific point as regards the alteration in the signalling methods or machinery, the Member is, I think, very well aware that to apply his suggestion to the main-line railways would be an enormous task and would have to have the very serious and full consideration of any body which was responsible, either now or in the past. It would depend on the capital resources, and the men, material, and other factors available.

Mr. J. A. Sparks (Acton—Lab.): Is the Minister aware that there have been serious staffing difficulties on the railways in recent years, and to some extent that may be a contributory factor; and will the

Minister also request the appropriate authority to make the causes of these accidents much more widely known among the staff concerned than they are at the present time? If that is done, I think it will assist very considerably to tighten up any looseness that appears to exist at present.

Commander Galbraith: Will the Minister satisfy himself that there are sufficient qualified signalmen available to British Railways? This is important.

Mr. Barnes: As I have already indicated, I do not want at this stage to be drawn into an assumption, either by inference or otherwise, that there was any failure because of the staffing of the railways. In a situation of this kind it is essential that the Minister should await the report of the officer who was appointed to investigate the disaster fully.

Mr. A. J. Champion (Derby, Southern—Lab.): Will not the Minister use his power to direct the Transport Commission to install these devices, because every signalman, when he reads these reports and knows what has happened, feels, as I have felt in similar circumstances, "There, but for the Grace of God, go I." That is the position of signalmen in that respect, and it will continue to be so until the railways put into operation proper safety devices which are known by every signalman to exist.

Brigadier F. Medlicott (Eastern Norfolk—Lib. Nat.): Is the Minister aware that the communication cord is, in fact, a very old-fashioned device indeed, and is not the time long overdue when more modern methods, such as telephonic or short wave communication, should be installed for the safety and convenience of passengers? If there is any technical reason why that cannot be done, could it not be made generally known?

Mr. Teeling: Will the Minister assure the House that the question of cost will not make improvements less up to date than would have been the case before nationalisation?

Mr. Barnes: I thought I had made it quite plain that I do not want to be drawn into discussions on methods at this stage, but on the general question whether any improvements or alterations which are found desirable could be made in the future as well as, or better than, in the past, I should say that the British Transport Commission will be in a more favourable position in regard to finance to carry out any changes than the many separate undertakings would have been.

Inland Waterways

Mr. J. A. Sparks (Acton—Lab.) on April 26 asked the Minister of Transport why no directive had yet been given to the British Transport Commission to facilitate and encourage transport and navigation for commercial and pleasure purposes on the navigable canals and inland waterways.

Mr. Alfred Barnes: In view of the general duty placed on the British Transport Commission by section 3 of the Transport Act, 1947, such a direction is unnecessary.

Mr. Sparks: Is the Minister aware that the Railway Executive, like the railway companies previously, appears to be placing a good deal of obstruction in the way of the use of the canals for transport and pleasure purposes? In view of the shortage of railway wagons and locomotives, will the Minister make some representations to see that the maximum use is made of the canals and inland waterways system of this country?

Mr. Barnes: I do not think obstruction can take place in the British Transport Commission's set-up. Mr. Sparks knows that a special Executive is charged with the problem of utilising fully the ports, canals and inland waterways of this country, and therefore it is that which has jurisdiction over the canals. I have no reason to suppose that it will not be anxious to develop them to their fullest capacity.

"Battle of Britain" Class Engine Named at Waterloo



British Railways, Southern Region, "Battle of Britain" class engine No. s21C158 named "Sir Frederick Pile," by General Sir Frederick Pile, wartime G. O. C. in C. Anti-Aircraft Command. See paragraph in our last week's issue

Notes and News

Additional London Week-End Bus Services.—Large-scale improvements in Saturday and Sunday bus and trolleybus services in London will take effect from May 8. Existing routes are being extended and frequencies improved, to the extent of 13 additional buses an hour in one case, and certain new routes are to be added.

Metropolitan-Cammell Carriage & Wagon Co. Ltd.—A profit of £163,670 is shown for the year ended December 31, 1947, comparing with £152,112 in the preceding year. The company's results are published together with those of the English Steel Corporation Limited in the annual report of Cammell Laird & Co. Ltd., which owns 500,154 ordinary shares of £1 each in the company.

B.T.C. Delegation of Functions to Road Transport Executive.—Pursuant to section 5 of the Transport Act, 1947, the British Transport Commission has made, and the Minister of Transport has approved, a scheme delegating to the Road Transport Executive as from April 15 certain of the functions of the Commission under the Act. Copies of the scheme may be obtained from the office of the Commission, 55, Broadway, Westminster, S.W.1, price 1s. each.

Northern Ireland Transport Bill.—Major Percival-Maxwell, Parliamentary Secretary to the Northern Ireland Ministry of Commerce, announced in the Ulster House of Commons on April 27 that he hoped to introduce a Bill for the purpose of giving effect to the Government's plans for public transport within the next week or two. In reply to a question, he said that the arrangements for the transfer of the Northern Ireland portion of the Great Northern Railway (Ireland) to the Northern Ireland Road Transport Board were not complete.

L.M.R. Lighting Scheme at Coventry Goods Depot.—Electric lighting is being installed in the sidings at the Coundon Road (Coventry) Goods Depot of the London Midland Region in order to enable loading to be carried on at night of the large consignments of Ferguson tractors which are being despatched from this depot at an average rate of about 60 a day, primarily for export. During the first three months of 1948, 47 special trains conveying 4,133 tractors in 2,151 wagons were run from Coventry to ports of shipment, including London, Bristol, Hull, Liverpool, and Newport (Mon.). In addition, 1,170 agricultural tractors were conveyed by ordinary goods services, making 5,303 tractors carried by rail.

Portuguese Bridge Contract for British Firm.—The Portuguese Government has accepted the design and tender of Dorman, Long & Co. Ltd., Middlesbrough, in association with a Portuguese company, for a road bridge to be built over the River Tagus at Vila Franca, 20 miles above Lisbon. Six designs were submitted by the company, and the one accepted consists of five steel arch spans of 340 ft. each for the main river crossing, flanked on each side by reinforced concrete viaduct approaches. The complete bridge will cost about £1,200,000 and will require approximately 3,000 tons of steelwork, all of which will be rolled and fabricated in the United Kingdom. The tender from Dorman, Long & Co. Ltd. was the only one submitted by a British firm, and had to meet strong international competition

from American, Czech, French, German, and Swedish firms. This is the second major bridge contract awarded to the company in the last fifteen months, the other being for the Kafr el Zayat Bridge over the Nile for the Egyptian State Railways (see our issues of February 14 and November 28, 1947).

Chairman of B.T.C. in Southern Region Tour.—In continuation of his policy of visiting railway centres, and getting to know the local officials and staff, Sir Cyril Hurcomb, Chairman, British Transport Commission, visited Woking on April 27, where he inspected the divisional offices and electrical distribution control room, Missenden House (Southern Railway home for retired employees), the Southern Railway Orphanage, and the

Southern Region Staff Training College. This week, Sir Cyril Hurcomb visited London Bridge Station on Wednesday, where he watched the morning business traffic, and later the same day inspected Dover Marine Station, the train-ferry dock, and the harbour at Folkestone. On Thursday there was a visit to the Brighton and Eastleigh works and the motive power depot at Salisbury.

Vulcan Foundry Limited.—The balance of the profit and loss account for the year to December 31, 1947, is £171,326 (£316,439), and includes a dividend amounting to £9,627 from the subsidiary company. After deducting £112,473 (£227,439) appropriated for taxation, £35,000 (£50,000) transferred to general reserve, £2,750 (£2,750) for the dividend on the cumula-

tive preference stock for the year to December 31, 1947; and adding £9,546 representing a dividend received on the trade investment in respect of the year 1946, and £51,820 (£45,782) brought forward, there is an available balance of £82,469 (£82,032). The directors now recommend a dividend of 5 per cent. (same) and a bonus of 1½ per cent. (same) on the ordinary stock (both less income tax at 9s.), carrying forward £52,257 (£51,820).

British South Africa Company.—An increase to 16½ per cent. has been made in the ordinary dividend for the year ended September 30 last, the previous distribution having been 11½ per cent. Net profit, after taxation, was £951,564, as against £453,164 in the preceding year.

Railway Strike Called in U.S.A.—Unions representing railway firemen and shunters in the U.S.A. decided on April 28 to call a strike on May 11 in support of a demand for a 30 per cent. wage increase and improved working conditions. They were joined in the decision to strike by the drivers' union at a meeting on April 30.

Westinghouse Brake & Signal Co. Ltd.—Trading profits of the group for the year to September 27 last were £413,613, comparing with £379,745 in the previous year. There was an increase from £221,751 to £279,001 in the trading profit of the parent company, but subsidiaries earned lower profits, the total of £134,612 comparing with £157,994 in the preceding year. A dividend of 14 per cent., less tax, has been declared for the year. In the preceding year a dividend of 10 per cent. and a bonus of 4 per cent. were paid.

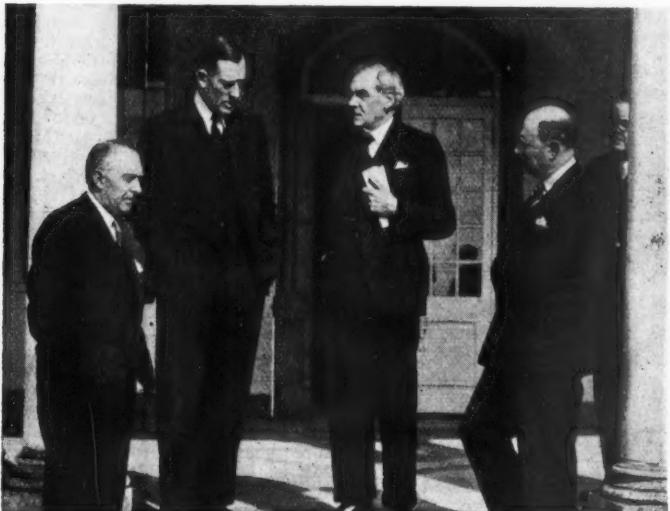
Luncheon to Mr. G. C. Rhodes.—A luncheon to do honour to Mr. G. C. Rhodes and present him with a souvenir to commemorate his retirement as Agent-General for Great Britain of the French Line, after fifty-one years' service with that company, will be given by his friends at the Café Royal, Regent Street, W.1, on Monday, June 7. Tickets cost 30s., and include the luncheon, tips, and donation towards the souvenir. Those interested are asked to communicate with Mr. Walter Pontin, The Anchorage, Sole Farm Road, Great Bookham, Surrey.

International Road Transport Union.—The new international body to represent the road transport federations of thirteen European countries and the U.S.A. has now been set up, and will be known as the International Road Transport Union. The official languages of the Union are English and French, and its head office in Geneva is under the charge of a whole-time paid secretary. The countries represented on the Union already include Austria, Hungary, France, Italy, Holland, Belgium, Denmark, Sweden, Norway, Czechoslovakia, Finland, Switzerland, Great Britain, and the U.S.A. The governing body is the general assembly, made up of twenty-four representatives of each nation associated with the Union. Of these twenty-four, eight are selected from and by the national organisation of road hauliers, eight from the corresponding organisation representing ancillary users, and eight from the passenger vehicle operators' organisation (thus the structure in each country is in line with that of Great Britain, where the National Road Transport Federation has as its three constituents the Road Haulage Association, the Traders' Road Transport Association, and the Passenger Vehicle Operators' Association). The General assembly will meet once in two years, its meetings con-

Sir Cyril Hurcomb Visits Southern Region Institutions



Sir Cyril Hurcomb, Chairman, British Transport Commission, visited Woking on April 27, and inspected, among other centres, the Southern Railway Orphanage, where he is seen in the photograph reproduced above, chatting with a young patient



Sir Cyril Hurcomb at the Southern Region Staff Training College, with Sir Eustace Missenden, Chairman of the Railway Executive, Mr. J. Payne, Principal of the College, Mr. John Elliot, Chief Regional Officer, and Mr. C. F. De Pury, Divisional Superintendent, London West, Southern Region (See paragraph above)

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OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

FOR SALE.—Two used Coal Fuel Briquetting Plants. Makers: Messrs. Yeadon & Co., Leeds. Forms of tender and inspection arrangements from the STORES SUPERINTENDENT, CORAS IOMPAIR EIREANN, Inchicore, Dublin. Closing date for tenders, June 4, 1948.

stituting, in effect, a series of international road transport congresses held in rotation in various countries. For administration purposes a council is elected by the general assembly and in turn appoints an executive committee.

British Oxygen Co. Ltd.—After depreciation and taxes, the company showed a net profit for 1947 of £921,438, an increase of £6,687. Payments to outside shareholders take £68,233, subscribers retain £131,622, and the balance of £721,583 is made available to the parent company.

Strike of Paris Metro Motormen.—Restricted train services were operated on the Paris Metropolitan Railway on May 2 after motormen belonging to an independent union had struck on the grounds that their demands for increased wages had not been met. Members of the C.G.T. (Confédération Générale du Travail) did not join the strike and continued to provide a limited train service.

Finance for Argentine State Railways Extension.—Reuters reports from Buenos Aires that the Argentine Government has allocated the provisional sum of ps. 100 million for the construction of a railway from the port of Santa Cruz to the coal deposits at Rio Turbio (see our November 14, 1947, issue). The Decree authorising construction of the line states that the work is urgent and that the line should be in operation with the least possible delay.

Berkhamsted Bridge Replacement.—Echo of a wartime incident on the main line from Euston to the North is the placing of a contract by British Railways, London Midland Region, for the building of a permanent steel and concrete bridge over the railway at Ivy House Lane, Berkhamsted, Herts. During a raid in November, 1940, the original bridge collapsed in front of a Glasgow-Euston express, which was derailed by the debris, and since then a temporary footbridge has been in use. This now will be replaced by a new bridge, to be built by Leonard Fairclough Limited, Terminal House, Grosvenor Gardens, London, S.W.1.

Skefko Ball Bearing Co. Ltd.—Sir Ralph G. C. Glyn, Chairman of the Skefko Ball Bearing Co. Ltd., said at the company's annual general meeting on April 22 that the cautious optimism expressed in his preceding speech had been justified. Additions to plant and properties during the year entailed an expenditure of £204,675, most of which referred to extensions of the company's factories at Sundon, near Luton. He was pleased to say that these extensions had been almost completed, and production had begun in the new factory some days earlier. Production was running at a satisfactory rate, and their order book continued to be as full as ever, with no sign of slackening in the demand for ball and roller bearings of all types both from home and overseas. He felt bound to give a warning, however, that they had to look forward to a time

4-8-2 CLASS "15F" LOCOMOTIVES FOR THE SOUTH AFRICAN RAILWAYS. The latest examples of these main-line passenger and freight locomotives have been built by the North British Locomotive Co. Ltd. Reprinted from *The Railway Gazette* of September 20, 1946. Price 2s. By post 2s. 2d.

TRAFFIC CONTROL ON THE L.M.S.R. Coordination of operating arrangements as a result of grouping.—Central, Divisional, and District Control—Outline of unified methods adopted—Organisation and working—Control telephone circuits—Daily telephonic conferences. Paper. 12 in. by 9 in. 20 pp. Illustrated. 5s. By post 5s. 2d.

ONGMOOR MILITARY RAILWAY. Transportation Training Centre of the Corps of Royal Engineers. Reprint of an article published in *The Railway Gazette*, July 5, 1946. 22 pp. 9 in. by 6 in. Illustrated. In paper cover, 2s. By post 2s. 3d.

BRITISH WORK ON PERSIAN RAILWAYS. The achievements and difficulties of the R.E.s during the 15 months in which they laid the foundation for effective aid to Russia. Reprinted from *The Railway Gazette*, February 2 and 16, 1945. Price 1s. Post free 1s. 2d.

earnings by way of revenue from investments might not be sufficient in themselves to enable the dividend of the trust to be maintained at the former rate. The accounts for the six months ended September 30 last showed a net profit of £55,107, and a dividend of 4 per cent., less income tax, had been declared. The carry-forward of £85,401 was £10,980 higher than the balance of unappropriated profit at March 31, 1947.

Madras Railway Annuities.—It was recently notified that a total sum of £7,443,163 4s. 9d. is now invested for the purpose of providing a sinking fund in respect of Madras Railway Annuities Class "B."

Tube Investments Limited.—An interim ordinary dividend of 12½ per cent., as in the previous year, has been declared on account of the 12 months ended July 31, 1948. The dividend declaration was accompanied by a statement from the board to the effect that the rate for the current financial year would not exceed that for the preceding 12 months.

Associated Electrical Industries Limited.—A trading profit of £4,454,498 was shown by the group for 1947, compared with £3,168,633 in the preceding year. The addition of dividends, and profit on sales of investments and assets, gives a total of £4,641,453. After taxation, depreciation, additions to reserves, and directors' fees, the net profit of £1,518,977 compares with £1,492,015 in 1946. The parent company showed a trading profit of £1,933,210, as against £1,062,915, and a net profit of £1,162,008 compared with £1,096,046. An allocation of £547,475 is made to general reserve, and the ordinary dividend and bonus of 15 per cent. take £495,000 as in the preceding year. The directors state in the report that they have considered it prudent to increase the general reserve of the parent company to £3,750,000 by the allocation mentioned above of £5,474,475 from profits.

G. D. Peters & Co. Ltd.—The Chairman of G. D. Peters & Co. Ltd., Lord Inverforth, said in his statement presented to the company's general meeting recently that their order book and works capacity would have enabled them to obtain a far greater output had sufficient labour and materials been available. The difficulty in obtaining labour was due in part to the shortage of living accommodation. They had prepared a scheme to repair this deficiency, but their efforts to bring it into full operation had been frustrated at every turn. It was only recently, after the matter had passed through the hands of several Government departments, that they had obtained permission to proceed with the main portion of the scheme. They expected an improvement in their labour position when their living accommodation scheme was in full operation, but it seemed likely that the shortage of materials would continue for some time to come. The accounts showed a balance for the year of

£93,301 before providing for taxation, and the meeting approved the directors' recommendation of a final ordinary dividend of 7½ per cent. and a cash bonus of 2½ per cent., bringing a total distribution for the year up to 17½ per cent.

Coil Spring Federation.—The Coil Spring Federation and the Coil Spring Federation Research Organisation are holding their annual meetings at the Queens Hotel, Birmingham, on May 12. The meetings will be followed at 2.30 p.m. by a paper "Prestressing of Springs with special reference to the Internal Stresses induced," by Dr. J. A. Pope, and subsequently there will be an open discussion.

Atom Train at Waterloo Station.—The atom train, which is travelling exhibition of atomic energy, will be on view at Waterloo Station, platform 15, from May 3 to the end of the month. It is open to the public from 9 a.m. to 9 p.m., Monday to Friday, except during the Whitsun holiday period (May 14 to 18). The atom train exhibition is intended to assist the public in understanding atomic energy, and is fitted into two railway coaches, explaining fundamental facts about atoms and atomic energy, as well as their practical application.

Valuation of Railway Securities.—After considering the evidence submitted at the hearing on April 28, 1948, of applications by the British Transport Commission, pursuant to Section 17(3) of the Transport Act, 1947, the Transport Arbitration Tribunal has issued orders, dated April 30, 1948, determining the value of the following securities specified in Part II of the Fourth Schedule to the Act:

| Name of body by which security was issued | Nature of security | Value per £100 nominal |
|---|---|------------------------------|
| The North Devon & Cornwall Junction Light Railway Company | 5 per cent. debenture stock ... £129 | |
| | Ordinary shares ... £0 5s. Od. | |
| | 5 per cent. debenture bonds ... £50 | |
| | 5 per cent. first debenture stock ... £0 5s. Od. | |
| | 5 per cent. second debenture stock ... £0 5s. Od. | |
| | 4½ per cent. prior charge debenture stock ... £5 | |
| | Ordinary stock ... £0 5s. Od. | |
| The Shropshire Railways Company | Ordinary shares ... £0 5s. Od. | |
| The Shropshire & Montgomeryshire Light Railway Company | Ordinary shares ... £0 5s. Od. | |

In the case of the 5 per cent. debenture stock of the North Devon & Cornwall Junction Light Railway Company, the value is £2 per cent. higher than that suggested by the Transport Commission.

Forthcoming Meetings

May 11 (Tues.)—The Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 5.30 p.m., "Coast Erosion and Sea Defence, with Special Reference to Problems on the East Coast of England associated with the London & North Eastern Railway," by Mr. T. H. Seaton, M.I.C.E. "The Effect of Winds and Tides on Sea Coast Defence Works in North Wales," by Mr. C. R. Irving.

May 13 (Thurs.)—The Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 5.30 p.m. Annual General Meeting; Corporate Members and Associates only.

May 13-22.—The Society of Model & Experimental Engineers. Exhibition at the Exhibition Pavilion of the Imperial Institute, South Kensington, open from 11 a.m. to 9 p.m.

Railway Stock Market

Markets have been proceeding cautiously, buyers holding off earlier in the week pending the Foreign Secretary's speech and the debate on the Finance Bill. The latter, it was assumed, would clarify many of the uncertainties attaching to the "once for all" levy on investment income. British Funds were less firm, the poor National Savings figures affecting sentiment to some extent; but, on the other hand, leading industrial shares turned firmer, helped by the higher earnings disclosed by the majority of company results coming to hand.

It is being assumed that the greater part of the pending £100,000,000 of Argentine railway pay-out money will be reinvested in gilt-edged stocks, but in some quarters it is expected that a good proportion will go into front-rank industrials. In any case, these and other disbursements over the next few weeks can be expected to result in somewhat more active market conditions.

Railway stocks attracted a good deal less business, Brazil rails receding in the continued absence of details of the Anglo-Brazil agreement. San Paulo, after 186, receded again to 184; Leopoldina eased to 154, and the preference stock to 44½, while the debentures were 78½ and Leopoldina Terminal debentures 72½. Great Western of Brazil £10 shares were 72s. 6d. after 75s. Antofagasta eased to 12½, and the preference stock to 67½. In other directions, United of Havana 1906 debentures eased to 17½. Uruguay railway stocks have been firm on "share-out" estimates. Central Uruguay ordinary was 15 and the second debentures 84½, with North West Uruguay first preference 34 and Midland Uruguay debentures 44½.

Nyasaland ordinary shares have changed hands at 4s. 9d., awaiting terms of the forthcoming debenture offer. Beira Railway bearer shares were active up to 58s.

Barranquilla 10s. shares have marked 1s. 7½d. Elsewhere, Paraguay Central 6 per cent. debentures were 43, and there were numerous dealings around 42½ in White Pass & Yukon 6 per cent. debentures.

Although higher on balance, British Funds have not attracted a great deal of business. Prices have been marked up in the confident assumption that much of the money now awaiting investment will be placed in gilt-edged stocks. Transport (1978-88) has been at 96½, and the 1967-72 issue was firm at 97½, although the 1968-73 stock eased to 98½. If, as is being suggested in some quarters, the upward trend in the gilt-edged market is continued, it can be expected that British Transports will participate. Nevertheless, it is reported that on any small improvement in the major 1978-88 stock, a good deal of selling is encountered because of a disposition to favour shorter-dated gilt-edged.

Road transport shares have been quiet, but with few exceptions were quite well maintained. Main attention in the City is centred on whether the pending British Electric Traction dividend will be increased. Some of the operating companies in the group have raised their payments despite the dividend limitation stipulation; but this was due to special circumstances.

Despite the belief that the Government intends to bring in a Bill before the end of the year for nationalisation of iron and steel producers, iron and steel shares have remained firm. It is believed in the City that in most cases such shares as United Steel, Colvilles, and others, are moderately priced; yields are not unattractive, and there is every expectation that dividends this year will be maintained.

Shares of locomotive building and engineering companies were generally steady, although less active.

Traffic Table of Overseas and Foreign Railways

| Railways | Miles open | Week ended | Traffics for week | | No. of Week | Aggregate traffics to date | |
|-------------------------|------------|-------------|-------------------|------------------------------------|-------------|----------------------------|----------------------|
| | | | Total this year | Inc. or dec. compared with 1945/46 | | Total 1947/8 | Increase or decrease |
| Antofagasta | 834 | 25.4.48 | £ 56,400 | + 15,480 | 17 | £ 887,200 | + £ 243,340 |
| Bolivar | 174 | Mar., 1948 | \$107,937 | - \$3,698 | 13 | \$294,242 | - \$46,070 |
| Brazil | | | | | | | |
| Cent. Uruguay | 970 | 19.4.48 | 41,804 | + 130 | 42 | 1,484,878 | - 76,970 |
| Costa Rica | 262 | Mar., 1948 | 25,390 | + 7,138 | 39 | 292,351 | + 39,451 |
| Dorada | 70 | Feb., 1948 | 16,700 | - 12,900 | 9 | 39,800 | + 20,500 |
| G.W. of Brazil | 1,030 | 24.4.48 | 32,000 | + 800 | 17 | 632,100 | + 9,700 |
| Inter. Ctl. Amer. | 794 | Feb., 1948 | \$1,144,611 | + \$1,242 | 9 | \$2,402,164 | + \$74,903 |
| La Guaira | 224 | Mar., 1948 | \$123,329 | + \$6,679 | 14 | \$291,639 | + 83,436 |
| Leopoldina | 1,918 | 24.4.48 | 55,730 | + 4,293 | 9 | 910,888 | + 157,902 |
| Midland Uruguay | 319 | Mar., 1948 | 16,928 | + 149 | 39 | 162,099 | + 11,210 |
| Nitrate | 382 | 15.4.48 | 13,338 | + 3,869 | 16 | 86,329 | + 27,534 |
| N.W. of Uruguay | 113 | Mar., 1948 | 6,536 | + 35 | 39 | 48,421 | + 1,912 |
| Paraguay Cent. | 274 | 23.4.48 | £ 67,639 | + £ 2,573 | 43 | £ 2,827,334 | + £ 114,638 |
| Peru Corp. | 1,059 | Mar., 1948 | 168,201 | + 13,122 | 39 | 1,527,280 | + 170,666 |
| Salvador | 100 | Feb., 1948 | c\$309,000 | + c\$65,000 | 35 | c\$1,381,600 | + c\$252,600 |
| San Paulo | 153 | | | | | | |
| Talatal | 156 | Mar., 1948 | 11,805 | + 8,880 | 39 | 70,410 | + 32,780 |
| United of Havana | 1,301 | 24.1.48 | 120,818 | + 6,480 | 43 | 3,205,619 | + 412,454 |
| Uruguay Northern | 73 | Mar., 1948 | 1,464 | + 159 | 39 | 10,584 | - 743 |
| South & Central America | | | | | | | |
| Canadian National | 23,535 | Mar., 1948 | 9,662,750 | + 575,250 | 14 | 26,667,500 | + 1,598,500 |
| Canadian Pacific | 17,037 | Mar., 1948 | 7,086,500 | + 348,000 | 14 | 19,889,500 | + 1,552,500 |
| Canda | | | | | | | |
| Barsi Light | 202 | Mar., 1948 | 25,432 | + 1,455 | 52 | 295,800 | + 23,370 |
| Beira | 204 | Feb., 1948 | 111,097 | + 20,529 | 22 | 580,320 | + 134,080 |
| Egyptian Delta | 607 | 20.3.48 | 18,195 | + 1,076 | 51 | 608,291 | + 45,846 |
| Gold Coast | 536 | Dec., 1947 | 204,032 | + 8,365 | 39 | 1,392,691 | + 230,301 |
| Manila | | | | | | | |
| Mid. of W. Australia | 277 | Feb., 1948 | 21,855 | + 5,112 | 35 | 184,383 | + 48,562 |
| Nigeria | 1,900 | Jan., 1948 | 521,787 | + 59,708 | 44 | 3,899,303 | + 20,011 |
| Rhodesia | 2,445 | Sept., 1947 | 643,980 | + 102,833 | 52 | 6,787,603 | + 612,938 |
| South African | 13,323 | 3.4.48 | 1,241,393 | + 58,022 | 1 | 591,299* | + 19,087 |
| Victoria | 4,774 | Jan., 1948 | 1,480,357 | + 164,562 | 31 | | |
| Various | | | | | | | |

* Total for 3 days from April 1

† Receipts are calculated @ 1s. 6d. to the rupee